

10/11/17

NATURE STUDIED

WITH A VIEW

TO PRESERVE AND RESTORE

H E A L T H.

CONTAINING

AN EXPLANATION of the
ANIMAL OECONOMY.

The Nature and Cause of
DISEASES and their
CURE.

The Uncertainty and per-
nicious EFFECTS of
PHYSIC.

The Insufficiency of THE-
ORY in the CURE of
DISEASES.

NATURE proved to be the
best PHYSICIAN.

How to continue and restore
HEALTH by simple and
easy METHODS.

WITH AN ACCOUNT

Of a most powerful and safe Deobstruent MEDICINE,
of great Service in many DISEASES, particu-
larly in ASTHMA's, CONSUMPTIONS,
KING's-EVIL, PALSY, and in the
worst Kind of FEVERS, &c.

By WILLIAM SMITH, M.D.

Quam bene valere melius in vita nihil!

L O N D O N:

Printed for W. OWEN, between the Temple Gates,
Fleet-street. MDCCLXXIV,

TO THE
RIGHT HONOURABLE
LORD NORTH,
KNIGHT OF THE GARTER, &c. &c.

MY LORD,

IT is the character of an exalted and perspicacious mind, to survey a wide circumference of knowledge, and diffuse its attention among objects in appearance very little allied to one another: I therefore make no apology for inscribing to your Lordship a medical treatise, in which no mention is made of the art of government, or the interests of Europe.

DEDICATION.

THE whole is only an aggregate of its parts. He that devotes days and nights to the happiness of nations, has likewise his moments to spare for the welfare of individuals; and this little book, though it be useless amidst the toils of state and the storms of faction, may not be unwelcome when your softer virtues take their turn to operate in private benignity and domestick tenderness.

POLITICAL happiness can be superstructed only upon natural good. When pain or sickness invade us, wise laws, an equal government, and lucrative commerce become empty sounds. My studies will not be useless if they shall

DEDICATION.

shall extend the advantages of your Lordship's administration by enabling others to enjoy them : and still more successful shall I think them, if they can procure your Lordship a longer participation of that felicity to which your vigilance and fortitude have raised your country.

I am, with the utmost respect and attachment,

My LORD,

Your Lordship's most obedient
and most humble servant,

Carey Street, Lincoln's Inn,

Jan. 28, 1774.

WILLIAM SMITH.

DEDICATION.

shall extend the advantages of
your Institution's administration by
enabling others to enjoy them;
and still more I earnestly shall I
think them, if they can procure
your Institution a longer period
of the future to which
your vigilance and faithful labors
shall your country.
I am, with the warmest respects
and attachments,

My Dear Sir,
Your Institution's administration
and more than I can

Copy sent to the
New York

WILLIAM SMITH

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NATURE

NATURE STUDIED
WITH A VIEW
TO RESTORE AND PRESERVE
HEALTH.

CHAP. I.

Of Physic.

N O science has for its end so noble an object as the art of physic: an art excellent above all others. Non est census supera censum salutis corporis. Qua ratione pauper sanus & fortis fœlicior est divite infirmo. What avail ample fortunes crowns and sceptres to one languishing upon a bed of sickness? King Pyrrhus prayed to God for health, which he preferred to vast empires, honours or victory. And Plato in *Gorgia* says, “ Ex triplici corporis bono, sani-

B

tate,

rate, forma & divitiis nulla fraude qua-
 fitis, τὸ ὑγιαίνειν ἀριστον εἶναι." Ask the sick
 or dying what they would give to pur-
 chase health or life. They will readily
 answer you, THEIR ALL. The miser
 lays bags at your feet. The king his
 sceptre, and the voluptuous man will
 even part with his pleasures to purchase
 health, the very essence of all worldly
 happiness. Since then health is of the
 highest importance to mankind, it is
 certainly right to endeavour to know
 wherein it consists, how it is to be lost,
 and by what means to be restored.

CHAP. II.

Of Man.

MAN is a compound being made up of a material and immaterial part, and each part bears a dependence and connection upon the other. The different affections of matter and motion differently modulate the action of the material part; and the immaterial part or soul is capable of producing diverse thoughts and motions in the system of matter: so that the mind or soul cannot be in health without the body, or the body without the mind. “*Sine animo corpus, & sine corpore animus recte valere non possit. Tenta enim est inter utrumque societas & sympathia, ut suas virtutes & vitia sibi invicem communicent.*” *Barthol. Præfat.* This is evident from observation in diseases, especially of the nervous kind. The soul, though impassible and immaterial, as it comes from the hand of its Creator, yet while it is shut up in the body, is subject to the

affections of matter. It is the fountain of all voluntary, and has power over the involuntary motions of the body in a state of health. Yet when the body is diseased or imperfectly formed, the operation of the soul is then irregular. So that a change in the one necessarily induces a proportionable change in the other. "Si gravi aliquo morbo delineatur corpus, vel gravis humoribus inficiatur, non aliter obscurat lumen ipsum rationis & intellectus, quam densa nubes solis radiis tenebras offundit."

WE have only a faint and very imperfect idea of that immaterial substance called soul, abstractedly considered. Sufficient it is for us to know that it acts and is acted upon by matter; by means of a subtile medium or animal æther contained in the nerves, which are dispersed over the whole body, and come originally from the cerebrum or cerebellum by means of the medulla oblongata or medulla spinalis. They go out in bundles regularly disposed in pairs,
like

like so many distinct trunks, which are afterwards divided into branches, ramifications and filaments. The nerves of the medulla oblongata go out, for the most part, through the basis of the cranium at holes situated according to their disposition. Those of the medulla spinalis pass through the lateral foramina of all the vertebræ, and through the great anterior foramina of the os sacrum. The nerves may be considered as a distinct system of vessels, whose principle of motion is the head. The animal æther is no doubt the most quick, active, and volatile of all imaginable fluids, otherwise it would be incapable of so quick and instantaneous motion, in order to determine the obedience of the muscles to the immediate orders of the will. They are the swift messengers of the soul, and the instruments of sensation. This we perceive by cutting, dividing, or destroying a nerve; the part of the body, where it goes, immediately loses all sensation, though the blood and fluids continue to circulate as before. And as the

nerves are dispersed over all the body, so every part of it we can touch has a sense of feeling, called sensation, which the nerves, if so and so modulated, by the impulse which their contained fluid receives from the application of body, and by the vibratory motion and collision of the machinulæ carry to the common sensorium or point where all the nerves terminate. The soul receives the impression and forms the idea. There matter ends and thought begins. But that mysterious boundary where matter terminates and soul begins who can describe? Nay we cannot comprehend how two substances, as soul and body, bearing so little an analogy to each other, can be so closely united together as we perceive them to be. But it is unquestionably true, that the soul has a power to put the body in motion, and it is equally certain, that the motions of the body excite thoughts or reflections in the soul. However, these two principles are not so blended or confounded one with the other as not to produce sometimes quite

quite different and independent operations. Metaphysical conclusions do not in the least depend upon the bodily motions, neither do the motions of the body absolutely depend upon the soul; for the body has a power of acting without its immediate assistance. It can digest the food and turn it into chyle and nourishment without the assistance of reason, thought, or reflection, as long as the body preserves its just ballance and standard of health. The circulation of the blood is carried on without any assistance from the will. When a person is in a sound sleep, the blood circulates, the heart and lungs perform their functions, the stomach digests the food, the secretions go on regular, and the animal spirits move in the body as the other fluids do; yet the will can absolutely determine their course and remove them into particular vessels whenever it thinks proper, and finds occasion for them.

THUS the God of nature hath formed us, and ordained that the material should

obey the direction of the immaterial part, et vice versa. Thus the soul moves or affects matter, and matter the soul. And the mechanical system of matter and spirit constitute that organized machine called body, which is preserved in life and health from the harmony of its several parts,

THE union of intelligent beings to organized bodies is certainly a great mystery. The Almighty, no doubt, had a view or design thereby to procure them a degree of happiness, which, without such union, they never would have had, in order, as it were, to make them amends for their narrow reach of penetration, and the little analogy there is between their and his divine nature. The material part of man is the object of our senses, and therefore its nature may be investigated by means of them,

WHEN God formed matter out of nothing, he assigned to it certain established laws, and gave to the respective
parti-

particles of it certain fixed and permanent configurations, which constitute the general principles of all mixed corporeal substances. But how the different combinations of those respective atoms, whether simple or compound, when actuated by the general laws of motion, should be capable of forming an organized body, is to me inconceivable. Therefore I am of opinion, that God, by a particular act of his will, formed or forms the original stamina of all things that have life, with such a surprising texture and combination, that the joint motions of nature cannot dissolve the union. If there be not a fixed unperishable something in all organized bodies, which constitutes the identity of person, how comes it that a person, who has not seen me for several years, knows me again at first sight? It cannot be denied, that the whole composition of the human body renews at certain times, therefore it cannot be asserted for truth and matter of fact, that those that see me to day, see the identical self or same person,

son, they saw several years ago; yet I am the same. This could not certainly be, if by my proper self is meant no more than an assemblage of particles of matter which compose my body, seeing this matter is no more the same. If there be nothing fixed or steady in this composition, nothing can constitute its essence, for certainly whatever makes the essence of a being, subsists together with it, and cannot be lost, unless such a being is destroyed at the same time. If then my whole body is subject to a perpetual change, it cannot be that self, the true and real essence. And as this continual revolution of particles, which incessantly flow from the body, and which are as constantly supplied by others, that occupy the same space, take the same configurations, and answer the same ends as the others did, cannot be the work of chance; therefore there must be some fixed and permanent principle, which distributes those new parts of matter and always disposes them in such order and uniformity. Otherwise men would
change

change figure and mien at every instant, and could not be distinguished from each other for any length of time. Every kind of vegetable we see requires a particular and specific matter for its formation and nourishment, yea every part of the same plant doth so; for very many and different ingredients go to the composition of one individual plant. If, therefore the soil, in which any vegetable or seed is planted, contains all or most of the proper ingredients, and those in a due quantity, it will grow and thrive. But if there be not so many corpuscles, as are necessary for the constitution of the main and essential parts of the plant, it will not thrive at all; or if the particles be not in sufficient plenty, then the plant will be starved, and never come at its natural stature; and if there be any of the less necessary corpuscles wanting, there will be some failure in the plant. It will be deficient in taste, smell, colour, or virtue. And though a tract of land does not contain matter proper for the configuration of one particular kind
of

of plant, yet it may of another. For it is impossible to imagine, that one uniform homogenous matter, having its principles or organical parts all of the same substance, consistence, figure, magnitude and gravity, should ever constitute bodies, so much unlike in all these respects, as vegetables of different kinds, and as the different parts of the same vegetable are. That one should carry a milky, another a yellow, a third a red juice in its veins; one afford a fragrant, and another an offensive smell; one a sweet, another a bitter acrid taste; one nourishing, another poisonous; one purgative, another astringent; one rough, another smooth, and all arise from the same matter, is past belief, without supposing some permanent immutable principle in every distinct species of vegetables, which preserves the distinct configuration of parts peculiar to each species, absorbs the proper juices, and arranges them in due order. That fixed permanent principle in man constitutes his very essence, and properly speaking is
the

the man, and the flesh and bulk which he acquires from nutrition is only appendages, wrappers, or bandages to it, and will, after death, dissolve and go to earth from whence it came; but the essence or self will remain unchangeable, till it appears at the general resurrection.

IN the air an universal spirit is floating, which penetrates every thing, and is itself the productive cause, and perhaps, even the very matter that gives birth to substances or bodies. This universal spirit is received into the body in a very plentiful manner, it is incorporated with the food we eat, contributes to our nutrition, supplies the waste of the finer fluids, particularly the nervous, and assists in carrying on the circulation. Therefore we see how necessary it is to study a healthy situation, for the air is more or less nutritive according to the quality and quantity of the particles of matter it receives from other bodies.

'Tis

'Tis not to be doubted that before the deluge the atmosphere was purer and abounded more with universal spirit than it has ever since, which occasioned man to live to a more advanced age. 'Tis even highly probable, that in the garden of Eden, the air was proportioned in such a manner, and the vegetables were so pure, that man would there have recruited, by such food and by respiration, whatever he may have lost by perspiration and every other excretion. Nay, that all kinds of vegetables were found there in such perfection, by means of a vast quantity of this universal spirit, that nothing useless or superfluous could steal into any part of the body, and therefore man would have for ever remained in a state of immortality, had not certain passions disturbed and hurt so happy a constitution. Our life depends upon perpetual motion, which exists no longer than the just counterpoize is supported. Such perpetuity is destroyed by too much or too little of any one thing. This was the case of
the

the first man, who by fear, the sudden attendant of his crime, lost such a happy ballance and became mortal. But his punishment did not rest there. The Almighty turned him out of this earthly paradise, where the purest food would have saved him a great deal of trouble, a very small matter would have sufficed to support him, and the earth every where produced all things in abundance; but God willed that his life should become a burden to him, by obliging him to earn his bread with the sweat of his brow; for which purpose he turned him out of the garden, and led him into places where the fruits of the earth were more scarce, and had less nourishment, therefore he wanted more of them than before, and had more trouble in gathering them. Yet it is probable, that the fruits of the earth afforded even then more nourishment than after the deluge, which made the primitive or first men live near a thousand years. But the deluge brought about a terrible change all over the face of the earth. The uni-

versal spirit became scarce in the earth
 and air, the former accordingly produced
 with more difficulty, and whatever it
 produced, contained less nourishment.
 The grosser particles of all kinds mixed
 with the more essential or purer ones, so
 that man did not live to so great an age
 as before. At the general resurrection,
 we are told that the elements shall be
 dissolved by heat; by means of that heat
 and fermentation there will probably be
 such a vast quantity of universal spirit
 generated, as will be able in an instant
 to give a full and sudden growth to our
 essence or first principle, and we shall
 perhaps retain very little of those par-
 ticles of matter, of which our bodies
 were composed before the grand cata-
 trophe, or general dissolution. And
 after the resurrection, if we are to dwell
 in places where the air abounds with the
 universal spirit, we shall then have no
 occasion for nourishment, as the same
 spirit which gave us growth, will be
 capable to support us in the same state of
 perfection, wherein, by its means, we
 are

are to be re-established, without the help of any gross food. Then we shall taste the same food which angels at this time make use of.

As man is an organized body, and susceptible of innumerable motions, some entirely dependent upon the will, others not so dependent, where the will has only a power of controul, so all his motions are the result of a stimulus upon the nerves. For the muscular fibres of animals are so framed as to contract whenever a cause, proper to excite their action, is applied to them, or without such application always to remain at rest. This cause is either an effect of the will, or a stimulus of one kind or other. To the former is owing the voluntary motions peculiar to animals; to the latter, the vital spontaneous and involuntary, which all vegetables possess, and is performed in infants, idiots, and brutes of the lowest order, in as perfect a manner as in the greatest and wisest philosopher. The first constitutes the animal, the other the vegetable life of man.

C H A P. III.

Irritation the Cause of Motion.

BY means of the connecting medium or nervous fluid, which unites matter and spirit together, the various impressions made upon the several parts of the body, not only by external but internal causes, are transmitted to and perceived by the mind. When a stimulus is applied to the body it obstructs the due and regular circulation of the nervous fluid, which regurgitates upon the mind, and thereby conveys a perception of pain, which the soul receiving, immediately directs a greater flow or influx of the nervous fluid or animal spirits to the affected part, in order to remove the offending matter, as is evident from external inflammations, and from experiments. For example, if you prick the heart of a frog, which is a muscle, it is immediately thrown into convulsions; irritate the guts, and they are instantly

instantly thrown into preternatural contractions. If the obstruction is great, then from the nature of obstruction in all fluids, the nervous æther is more accumulated in that part, and the soul, receiving disagreeable sensations from the offending matter, adds its influence by impelling the nervous fluid more forcibly to that part in order to remove the impediment. The consequence of which is, the heart contracts more forcibly and at shorter intervals, the circulation is accelerated, and by the collision of the parts, the heat is increased. If the vessels, by their convulsive throws, can disengage themselves of the stimulating and offending matter, then the dam is broke down, and the circulating fluid, before obstructed, returns to its regular circulation. Then the soul receives no disagreeable sensations, believes its tabernacle in safety, and therefore is at ease. If the obstructed matter is not entirely removed, then the sense of pain remains in proportion to the obstruction. For pain may be eased, and partly removed,

without dislodging the offending matter. Thus a pain arises from a greater flow and obstruction of the nervous fluid, to one particular place, than the laws of circulation admit of, so the other sound parts of the body are, during that time, proportionably deprived of their due quantity. When you apply a stimulus to another part of the body, you then occasion a pain in that part, and of course a greater flow of animal æther; the consequence is, a derivation from the part first affected and a mitigation of the inflammation, the vessels contract with less force, the circulation is not so rapid nor the heat so great, and the pain is divided, and thereby lessened. As the mind receives disagreeable sensations from two parts at once, it directs the nervous fluid equally to both. Thus we see the saying holds good, *Divide et impera*, one pain may be cured by inflicting another. And an obstruction, inflammation, &c. may be removed by applying a stimulus to any other part of the body. Hence we see the use of blisters, cataplasms, &c.

&c. in curing inflammations by causing a derivation. They are also of great use when applied to the inflamed part by increasing the oscillatory motion, and thereby assisting the vessels to throw off the offending matter and open the obstructions.

IRRITATION is the cause of all motion in the animal machine; and as the voluntary motions of the body are constant, uniform, and regular, so the soul being accustomed to them, is unconcerned and intirely neglectful of them, and leaves matter to act by its own stated laws.

C H A P. IV.

*Of involuntary Motion or vegetable Life.
—Of Nutrition, and the Progress of
the Food through the various Circu-
lations.*

NOW we will take a short view of the involuntary motions of man, and see how he exists and is supported, which is done by means of the food he receives by the mouth.

THE continual waste, which constant motion makes in the constitution, if there were not frequent and proper supplies, would soon wear out the body. The attrition and abrasion of the circulating fluids would quickly carry away the canals in which they circulate, if something was not furnished and conveyed to them, suited to fill up the waste and thereby supply what is washed off. A constant and regular supply is therefore absolutely

lutely necessary to support the animal machine.

OUR food is bulky matter more or less compacted, and is received into the mouth, and there has its parts broken by the action and grinding of the teeth; in passing from the mouth it irritates the fauces, which pulls up the larynx, and os hyoides, and suffers it to enter the pharynx, then it contracts, and the larynx being shut, forces it into the oesophagus, which having its nerves stimulated and its fibres stretched by the food and air in its descent, makes each ringlet of the tube contract itself, and thereby push on the food to the rest till at last it arrives at the stomach, which is a great bag or reservoir, of an oblong and incurvated figure, with two extremities called orifices, one large and one small, like a crooked funnel. The first opening is a continuation of the oesophagus, the other joins the intestinal canal, and is called the pylorus. On the concave side of the stomach the tunica nervosa

and villosa join in forming large rugæ, which contain a soft slimy mucus, with which the whole cavity is moistened. It is called succus gastricus or stomachicus. As the stomach receives in general, whatever the mouth and tongue send thither, through the canal of the oesophagus, it retains the aliment for a longer or shorter time in proportion as its parts are more or less solid or fluid, and digests it, that is, puts it into a condition to be turned into that nutritious homogeneous fluid substance called chyle or matter one degree refined. This operation, which goes by the general name of digestion, and by which chylication begins, is performed partly by the succus gastricus which continually flows from the tunica villosa, by the nature of the food itself, which being received into the stomach, follows its own nature, and by the heat of that organ soon ferments, and by the attrition and collision of its particles against each other and the coats of the stomach thereby stimulate it into convulsive contractions; by the continual
con-

contraction and relaxation of the muscular coats of the stomach, and by the alternate motions of the diaphragm and muscles of the abdomen the aliment acquires a sufficient degree of fluidity to pass easily through the pylorus. By a continuation of these motions and by the assistance of the air, which accompanied the aliment when it came into the stomach, the contents of the stomach are gently moved forward to the pylorus, where it passes and enters the intestines. These convulsive contractions are renewed till the stomach discharges its whole contents. So that the aliment is thrown into the guts by the alternate contractions of the stomach, excited thereunto by a stimulus, just in the same manner as the heart throws the blood into the arteries. The diastole of the stomach answers to the systole of the guts.

THE intestines are a long canal, lying between the pylorus and the very lowest part of the abdomen, bent in a great many different directions, by numerous
convo-

convolutions and turnings which fill the greatest part of the cavity of the abdomen, and is in general about seven or eight times as long as the subject. It is divided into small and great guts; the small are divided into three portions, the duodenum, jejunum and ileum, and the greater also into three, the cæcum, colon and rectum. The intestines in general are composed of several coats much in the same manner with the stomach. The small intestines form one continued uniform canal, and though three portions of it have three different names, yet we have no sufficient mark whereby to distinguish them, to fix the precise extent and length of each portion and to settle its just limits. The great intestines are the same continued canal divided into three portions like the small ones; their structure is nearly the same. The first coat is a continuation of the mesentery or duplicature of the peritoneum, the second coat is muscular, the third is nervous, and both are productions of the mesenteric vessels and nerves. The fourth coat

coat is very soft, and is named tunica villosa; it sustains an infinite number of capillary vessels of different kinds, for besides the blood vessels, we observe a great number of white filaments which run through it and terminate at its inner surface, like so many capillary roots of the vessels, called *venæ lactæ*. The fungous substance which binds the capillary filaments together and surrounds them, is very tender, and the capillary extremities of the small blood vessels distributed through it seem to be turned towards the pores of the papillæ. Through these pores, a mucous fluid more or less transparent is discharged, which continually moistens the cavity of the intestine. It is also furnished with a great number of small flat glandular tubes, which lie about the pylorus in clusters. The duodenum has a greater number of these papillæ than any of the other intestines. Indeed the only difference amongst the intestines consists in the thickness of their coats, and in the number of papillæ. In the inner side of the duodenum almost

almost at the lower part of the incurvation, there is a longitudinal eminence, in the apex of which, is an opening called the orifice of the ductus biliaris, within which the ductus pancreaticus likewise opens. The intestines finish what the stomach began. The alimentary pulp meeting with the intestinal lymph, pancreatic juice and bile, which is a fluid separated from the blood, acting upon the intestines as a stimulus, throw them into a peristaltic motion, and by valves placed at proper distances, which detained the aliment, till by its increased bulk it stimulates their coats into contractions, and the aliment is thereby discharged into the next portion. So that every motion of the guts between the valves, acts as a little stomach or heart. While the chyle is thus passing along, the more fluid part is by the same contractions thrown into the absorbent veins. The grosser or less nutritive parts, by their own intestine motion, the stimulus of the air, and by the action of the guts are conveyed from the ileum, the last of the
small

small guts, by the valve of the colon into the great guts, in the same manner as the food passes from the mouth into the pharynx. There it remains, till by the pressure of the diaphragm and abdominal muscles in respiration, by its own tumescence, as it advances onward it grows still thicker, and presses upon the coats of the intestines, and thereby stimulates them into gentle contractions, which transmit it forward, till at last it is pushed into the rectum, where partly by its own weight and bulk overstretching the fibres, and by the acrid quality of its contents, the gut is thrown into convulsive motions, which produce a desire of ejection, and the grosser part is at last discharged through the lower intestines, and is called fœces. But when the bile, which is very necessary as we shall afterwards see, to forward the expulsion of the fœces, is obstructed, or when the coats of the bowels are so relaxed, and their tone impaired, that they cannot discharge it, the person is costive, and the bowels are inflated with myasma arising from

from the excrement, which in that case remains longer in the intestines than by the laws of nature it ought.

COSTIVENESS with acrid crudities in the primæ viæ are the foundation of many diseases, which in progress of time terminate in various shapes. In a costive habit of body the fœces are hard, and the moisture which ought to be discharged with it, is again and again taken up by the absorbent lymphatics, and by the laws of circulation mixes with the mass of blood and carries with it a great deal of terrestrious offensive matter. Hence we see how necessary it is to keep the body open, and in the beginning of every complaint to cleanse the primæ viæ.

THIS bundle of intestines is confined in their place by the mesentery and mesocolon, which is a continuation of the mesentery. The first portion of the mesentery incloses the small intestines, the other portion contains the large ones.

Between

Between the laminæ of the mesentery a great number of glands lie scattered through the cellular substance; these glands, which are found in clusters, and are made up of arteries, veins, nerves, and other particular vessels, separate from the mass of blood by means of certain secretory vessels, fluids, which they discharge either immediately or by other vessels termed excretory, and these fluids are either accumulated in particular reservoirs, collected in the common cavities, or forced out of the body. Besides these glands and the blood vessels, which are distributed in a reticular manner in the mesentery, and besides many nervous filaments spread through them, there are an infinite number of small vessels of another kind running from gland to gland. They go out from each gland by ramifications, and after forming a small trunk are again divided and enter some neighbouring gland. They are called lymphatic vessels, *vasa chyliifera*, or *venæ lactæ*, because they receive the aliment reduced into a milky fluid called chyle,

chyle. They have the name of veins, because their valves are disposed as those of the ordinary blood veins, and the fluid which they contain runs from smaller into larger tubes. They derive their origin from the tunica villosa of the intestines, and form a rete mirabilis, which forms into two plains of ramifications. In this state they run on the laminæ of the inside of the mesentery till they arrive at the first mesenteric gland, where they again unite in one and are distributed through the mesentery; having passed through it, and uniting everywhere through its duplicature with the arterial ramifications, by their pulsation and by the irritation of the chyle, they propell it forward to the receptaculum chyli; before they arrive there, having passed the mesentery, they unite and form large hard trunks, which terminate about the middle of the mesocolon, and are joined by some others from the glandulæ lumbaræ; from thence they run down the body of the inferior aorta, and terminate in a kind of cystem called by

by anatomists receptaculum chyli. It is a membranous vesicle, the conformation of which is various in human subjects. The upper portion is contracted, and forms a particular canal called ductus thoracicus, which runs through the thorax. The thoracic duct is a thin transparent canal, which runs up from the receptaculum chyli along the spina dorsa, in some subjects, terminates in a kind of vesicula, in others, by several branches united together, which open into the backside of the subclavian vein. This canal is plentifully furnished with semilunar valves turned upwards. Its opening into the subclavian vein in the human body is in the place of valves, covered by several pelliculæ, so disposed as to permit the entrance of chyle into the blood, and at the same time to hinder the blood from running into the duct. The subclavian vein terminates in the vena cava, which empties itself into the heart.

Ductus thoracicus **THE**

THE heart is a muscular body situated in the cavity of the thorax. It is hollow within, and divided by a septa which runs between the edges into two cavities called the right and left ventricle; each ventricle opens at the basis by two orifices, one of which answers to the auricles, the other to the mouth of a large artery, and accordingly one of them may be termed the auricular orifice, the other the arterial orifice. The right ventricle opens into the right auricle, and into the trunk of the pulmonary artery; the left into the left auricle and into the great trunk of the aorta. The blood is carried by the ascending vena cava to the right auricle of the heart, thence into the right ventricle, and after its trituration and rarification there into the left auricle, from thence it passes into the left ventricle, and then it is thrown into two great arteries, the aorta and arteria pulmonalis, and by its quantity, turgescence, and acrid quality, dilates the coats of the heart, and by stimulating and irritating the nerves, occasions a

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greater

greater influx of the nervous fluid to the irritated parts, which throws the heart into violent spasmodic and convulsive affections, and being made up of strong muscular parts it struggles to disengage itself of the offending fluid, which at last it accomplishes by a strong contraction called the systole of the heart, which answers to the diastole of the arteries.

THE primary cause then of the circulation of the blood from the heart proceeds, as all the other motions of the fluids do, from the irritation it gives to the nerves, which throws them into spasms and convulsions. So that the circulation of the blood is carried on by the spasms of the nerves, and the nervous fluid circulates by means of the impulse of the mind, the stimulus of the atmosphere, the natural quality of the fluid itself, and the impetus it receives from the circulation of the blood in the larger vessels. Now if the blood was never to be stopt by the canals through which it runs, and if the continuity of

the canals was never to be interrupted, then being once put into motion by the first systole of the heart, it would always continue to move; but as it meets with great resistance, besides the systole of the heart, the blood is forwarded in its motion many other ways. The elasticity of the vessels, or that force by which their sides being distended by the blood flowing in, endeavour to restore themselves to their former state, give a fresh motion to the blood, and by a systole or contraction of their arteries, the blood is thrown into the veins. The diastole of the arteries is what we call the pulse. The veins have no pulsation, because the blood discharged from the arteries into the veins, goes from a narrower passage into a wider with a slower motion, and these vessels accommodate themselves more to the passing blood, and therefore are not expanded enough to make a pulse. The veins lie nearer the surface of the body than the arteries, and are furnished with valves, that is with small membranous sacculi
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fixed at different distances to the sides of their cavities; the openings of these valves are broad, and turned toward that side where the vein is largest. The arteries are thicker than the veins, and are known by that beating called a pulse. A contraction of the arteries may be considered as a continuation of the heart's force, and every contraction of the arteries acts as a little heart in pushing on the blood. The blood itself, from its own quality and the expanding air which it contains, is very fit to act as a stimulus upon the delicate fibres and nervous filaments of the vessels, and the smaller the vessels are, the more sensible. The intestine motion of the particles of the fluids produces a heat which likewise promotes the circulation. Before the blood arrives at the small vessels, it has lost all the motion it received from the heart, but the alternate contractions of the vessels through which it passes, excited thereunto by irritation, so that every fibre like a little heart pushes on the contained fluids, keep up the motion.

In the small capillary vessels, where it is far from being rapid, but rather very uncertain, slow, and irregular. The whole vascular system is endued with a moving power, the alternate contractions of the vessels, the semilunar valves of the aorta, the force of the heart, and the succeeding column of the moving fluid prevent the alternate contractions of the vessels from throwing the fluids backward, and impel them to move forwards to the veins. The blood being forced by the contraction of the ventricles, pushes the tricuspedal valves against each other, opens the semilunares and rushes into the arteries, which by their elasticity push on the blood, till it enters the capillary vessels, and is from thence forced to return by the veins to the auricles. It returns by three kinds of veins, called by anatomists *vena cava*, *vena portæ*, and *vena pulmonaris*. The *vena cava* carries back to the right auricles of the heart the blood conveyed by the aorta to all the parts of the body, except what goes by the *arteriæ coronariæ cordis*. It receives

receives all this blood from the arterial ramifications in part directly, and in part indirectly. The vena portæ receives the blood carried to the floating viscera of the abdomen, and conveys it to the vena hepatica, and from thence to the vena cava. The vena pulmonaris conveys to the pulmonary sinus or left auricle of the heart, the blood carried to the lungs by the aorta pulmonaris. The aorta gives rise to two small arteries called coronariæ cordis, which go to the heart and its auricles: from its upper arch or curvature it sends out three, sometimes four capital branches; the arteriæ carotides, which run directly to the head and brain, and the subclaviæ, out of which several arteries arise, as the mediastinum, thymus, pericardium, aspera arteria, &c. which supply the mediastina, pleura, pericardium, oesophagus, &c.

THE pulmonary artery divides and carries the blood to each lob of the lungs, which are two large spongy bodies filling

the whole cavity of the thorax or breast. The substance of the lungs is almost all spongy, being made up of an infinite number of membranous cells, and of different sorts of vessels, as air vessels, blood vessels, &c. spread among the cells in innumerable ramifications. These cells communicate with each other. All the vessels of which the lungs are chiefly composed, that is, the air vessels or bronchia, and the blood vessels, that is, the pulmonary and bronchial arteries and veins accompany each other through this whole viscus. These vessels transmit the blood through their narrow capillary extremities, and thereby change and modify it. By the contraction of the intercostal muscles, the arches of the ribs are raised, together with the sternum, and placed at a greater distance from each other, by which means the cavity of the thorax is enlarged and the diaphragm flattened, the cavity of the bronchia being at the same time and by the same means less pressed upon, the ambient air yields to the external pressure, and insinuates itself

self into all the places where the pressure is diminished, that is, into the aspera arteria, and into all the ramifications of the bronchia all the way to the vesicles. This is called inspiration. When this is performed, the intercostal muscles relax and the intercostal ligaments and cartilages of the ribs bring them nearer to each other. This motion is called respiration. By the action of the lungs the blood has the cohesions of its parts broken, is much attenuated and is deprived of a quantity of serum, which transpires through the lungs and is called the breath. And by the inspiration of fresh air it is reanimated and stimulated to pass to the reticular capillary extremities of the vessels. Respiration is owing both to the blood's acting as a stimulus upon the vessels of the lungs, and also to the operation of air in inspiration,

RESPIRATION differs from other involuntary motions, in this, that the mind has a more immediate power over it. The soul has, as I said before, a power
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over all the motions of the body; the voluntary motions are the result of its action, and the involuntary may be accelerated or retarded thereby, but it is no farther a party concerned in the involuntary motions of the body than when it is called upon by some præternatural stimulus. The foetus indeed lives in utero matris without respiration, because the greatest part of the blood by means of the foramen ovale or ductus arteriosus is conveyed from the right sinus venosus and ventricle of the heart, into the left ventricle and aorta, without passing through the lungs; and the nourishment which the child receives being derived from the juices of the mother which have already undergone a due trituration, is as fit for its nourishment as for her's,

A STIMULUS, which is the cause of all motion, keeps the animalcule alive in femine patris. Its circulation is kept up by means of its stimulating fluid and the heat of the body of the male, which is an additional one. When it is lodged

in utero matris, the heat of that vessel with the surrounding waters act as an assisting stimulant to carry on the circulation. When it comes into the world, the surrounding air sets the lungs in motion, and the circulation thereby goes on.

THE arteria vertibralis goes out from the upper side of the subclavian and supplies the vertibrál muscles. The oesophagææ arise from the aorta ascendens, and are distributed to the oesophagus. The arteriæ intercostales send out branches to the pleura, vertibral and abdominal muscles. The cæliac artery arises from the aorta descendens, and after giving off a considerable branch is itself divided into two, the arteria hepatica and splenica.

THE hepatic artery supplies the liver, which is a large and pretty solid mass of a dark red colour a little inclining to yellow, situated immediately under the diaphragm on the right side. It is composed of several kinds of vessels, the
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ramifications of which are multiplied in an astonishing manner, and formed by the intertexture of their capillary extremities in an innumerable collection of small pulpy friable corpuscles or organs designed to separate from the mass of blood a particular fluid called bile. The villi of the numerous glandular cells of which the liver is composed, filtrate continually from the blood of the vena portæ small drops of bile, which afterwards insinuate themselves into the pori biliarii, and are partly lodged in the gall bladder. The blood deprived of the bilious fluid is re-conveyed to the heart by a great number of venal ramifications, which terminate in the vana cava. The pori biliarii unite in one common trunk called ductus hepaticus, which having run a little way, joins another called ductus cysticus, and forms a common trunk named ductus cholidochus, which insinuates itself through the coats of the duodenum, and opens into the cavity thereof.

THE gall bladder, lying in the depression on the concave side of the liver, is a small bag like a pear, and is connected with it by a vast number of filaments, which run a great way into the substance of the liver, and amongst these filaments there are some which form a communication between the *pori biliarii* and *vesicula fellea* or gall bladder, which is a vessel designed to secrete from the blood a very acrid bile, which would be too acrid without mixing with the *hypatic*, and the *hypatic* would be too mild without it.

BESIDES these there is a long flat gland in shape like a dog's tongue, called the *pancreas*, lying under the stomach, composed of a great number of soft glandular *moleculæ*, in the middle of which is a particular duct in which several small ducts terminate. This duct is called *ductus pancreaticus*, and opens into the *ductus cholidochus*, and from thence it diminishes gradually and terminates in a point next the spleen.

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FROM the cœliac artery the splenic artery arises which supplies the spleen. The spleen is a bluish mass inclining to red, of a long oval figure, and is situated under the edge of the diaphragm, between the extremity of the stomach and the false ribs, above the left kidney. It is connected to the stomach by the vasa brevia, to the extremity of the pancreas by ramifications of the splenic artery and vein, and by ramifications which the same artery and vein send to the spleen; it is tyed to the omentum, which is a thin membranous bag spread over the small intestines from the stomach to the lower part of the regio umbilicalis and sometimes farther, and is connected with all the vessels already mentioned.

THE spleen, pancreas omentum, &c. all promote a secretion of bile: and the blood having its passage retarded in its circulation through these vessels is purged by various secretions till it meets in the sinus or trunk of the vena portæ hepatica, where it is all intimately mixed
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and becomes one uniform mass. All these arteries have corresponding veins which receive the blood from them, and convey it back to the heart after undergoing many purgations.

THE irregular secretion of bile is the cause of many, and exaggerates every complaint. This is an opinion as early as Hippocrates himself; for he tells us that he found Democritus with several dead bodies, which he was dissecting in order to find out the seat of the bile, and how it is ingenerated, that he might be the better able to cure the multitude of complaints arising from it. If the blood be not sufficiently agitated and attenuated by the action of the vessels, it becomes viscid, or when rendered viscid from any other cause it is disposed to stagnate. That this should happen so frequently in the liver is not to be wondered at; for whoever considers how slowly the blood being venal, is moved through the liver, when the contractile force of the heart and arteries are deficient and

and wanting as aids to propel it forwards, will see the cause of such frequent and obstinate chronic obstructions in that large viscus. Besides the bile has the same natural propensity to cohesion as the other fluids; for its watery parts being exhaled and its earthy ones being united with the oleous, a perfect pitchlike tenacious substance is formed. Nay, bile preserved in the gall bladder will go into stoney concretions. When the extremities of the bilious ducts are obstructed, and the hypatic bile being thinner than the blood will easily retrocede and escape into the vena cava, and so be carried into the mass of blood. I believe it is somewhat difficult for those bilious tubes to become obstructed, because they are as so many inverted cones, narrow at their origin, but increasing in circumference or dimensions the further they are extended, but near their entrance into the common duct to pass into the gut called duodenum, their diameters become contracted. Now it is certain that whatever hinders the bile from flowing

ing into the intestines, by contracting or blocking up the cavity of the hypatic and cystic duct, will occasion a re-flux of bile into the vena cava and produce a jaundice, whether it be from concretions therein situated, or by a pressure of those canals ab aliunde, or from too great a lentor and visciditv in the bile itself. If the bile again is not secreted from the fluids of the vena porta, the blood will be affected with a bilious cacochymy, or a redundance of that humour : why the re-flux of the bile into the blood should occasion a jaundice, or that pathognomonic or inseparable sign a discolouring of the skin, particularly of the whites of the eyes, no one can be at a loss to know. For the skin receives its tincture or hue from the juices, and the bile being of a saponaceous nature is easily dissolved with the watry part of our blood, circulates therewith, and moves along those vessels which do not admit of red blood ; and the tunica adnata or common covering of the eye is a very thin membrane, through which the yellow colouring of

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the bile is very conspicuous. The secretory vessels of the kidneys are likewise so small that they exclude red blood, and the urine consisting only of its watery part with some salt and oil mixed therewith, is soon perceptibly changed; and as the property of the bile is to fuse the blood, the whole skin soon receives a yellow colour.

THE blood is further purified and freed of its watery parts by the kidneys, which are glandular bodies in figure something like a bean. They are situated upon each side of the body, the right under the great lob of the liver, the left under the spleen, and are nourished by a branch from the vena cava and aorta descendens, which enter the kidneys by several rami. On their inside there are many radiated tubes which terminate in papillæ resembling cones, with very broad bases and obtuse apices, each of which lies in a membranous calix or infundibulum, which opens into a common cavity called the pelvis.

It is membranous and divided into three portions, each of which contains a certain number of infundibula, together with the papillæ which lie in them and form small short tubes, which uniting at different distances along the bottom of the sinus of the kidney, form three large ones; these tubes, in thus passing through the sinus, unite and form the urters; there is one for each kidney, which runs down obliquely and forms the fundus of the bladder. Through all these passages the urine is secreted, and at last lodged in the bladder, which is a solitary muscle, containing the urine which gradually oozes into its cavity by the urters. When the urine is in such a quantity as to distend its coats, it is then thrown into contractions, which with the assistance of the diaphragm, abdominal muscles, and levatores ani, open the sphincter and expel the urine. If the inner coats of the bladder are rubbed or fretted by a calculus or any acrid quality in the urine, then the sphincter is violently contracted and the diaphragm

and abdominal muscles are convulsed, the urine is obstructed, and the person feels a constant tendency to make water, though little or none comes away.

THE blood thus purified undergoes several circulations till by trituration it has suffered many of its angles to be rubbed off, and it thereby acquires a still finer consistence so as to enter the small capillary vessels, from thence it is absorbed by the nerves, where it is still further subtilized, and the finer part goes to support the body, and the excrementitious part is expelled by perspiration. All this action and motion of the fluids in the body are the result of a stimulus upon the nerves, and is properly called vegetable or natural life, as all vegetables, fossils, minerals, &c. have a circulation of this kind; and the Almighty leaves them to be governed by the laws of nature. Yet though irritation or a stimulus is the cause of motion, and supports and continues vegetable life, the best things may by excess become

become hurtful, and whatever is the cause of natural, if too much increased, will produce unnatural motions. So when it is greater than by the laws of nature it ought, which is the case in all obstructions, the mother of disease, then it disorders the animal oeconomy, and threatens the entire destruction of the whole human frame. Hence we see the necessity, in all diseases, of giving antispasmodic medicines in large doses, and though we do not perceive spasms outwardly, yet there cannot possibly be a disease without an unnatural irritation in some part of the body. The best antispasmodic is musch, which wonderfully alleviates convulsive spasms, eases pain, promotes a free circulation, raises the spirits, and is an excellent diaphoretic without heating or giving the smallest uneasiness. Sane- torius says, that this evacuation in one day is equal to all the sensible evacuations for fifteen, but this though it is not found by observations since made to be quite so great, yet it serves to shew how necessary a free perspiration is for

the preservation of health, and restoring it when lost. Every part of the surface of the body have vessels with open mouths to let out all noxious matter that offend it. Obstructed perspiration is the cause of many diseases, particularly of the nervous kind, and physicians have been so sensible of the salutary effects of this evacuation, that they have been in all ages searching after a medicine that will effectually promote it, but as far as I know, their searches have proved fruitless. When I wrote upon the nerves, I knew no medicine that would infallibly promote perspiration, otherwise I should have carefully imparted it to the public: since that time I have made that useful discovery, which, with some others of the utmost consequence in physic, hath prevailed upon me to write this small treatise.

C H A P. V.

Of voluntary Motion or animal Life.—

The general Causes of Diseases accounted for by the Laws of Mechanics, and the different Affections of Matter and Motion.

FROM what hath been said we plainly see that the involuntary motions of animals arise from mere mechanism, common to them with the other parts of the creation, and constitute their vegetable or material life. But man, in common with all other creatures, has an immaterial principle, by means of which he enjoys an animal life, which consists in voluntary motion; and as our involuntary motion depends upon a stimulus, applied to the nerves by a material agent, so our voluntary motion depends upon a stimulus given to the nerves from the mind. The nerves are the instruments made use of in both motions. Though the mind has a power

over the involuntary motions of the body in a healthy state, yet when the body is diseased or imperfectly formed, the operation of the mind is then irregular. Some people are born with imperfect nerves, and therefore continue idiots all their lives ; yet the soul all the while may be capable of action, if the bodily organs were duly formed to exercise its faculties upon them. The vast variety we find in mens natural capacities and endowments, no doubt arises mostly from the natural difference of the structure and mechanism of the bodily organs ; tho' for what we know there may be a difference even in the souls of men ; one soul may differ from another as one star differs from another star in glory. Again, the body could often walk when the soul is unable to direct walking through an indisposition of the nervous fluid : for it is in vain that the soul wills motion when the nerves are partly relaxed and unfit to execute the will of the mind. In vain does the palsical man will to walk, the blind to see, and the deaf to hear,

hear, 'till the impediments in the bodily organs are removed; when they, by proper applications, are removed, the body walks, the eyes see, the ears hear; yet we cannot suppose that the applications worked any change in the soul, which is impassible, consequently incapable of change; and matter can no more divest the soul of its faculties, though it can render it impossible for it to exert them upon the body, than it can add new qualities and properties to it. The bodily organs, upon which the operation of the soul depends, greatly vary, and diverse diseases disconcert and disorder the figure, motion, and texture of the organs of sensation, which consequently incur a proportional change in the exercise of the faculties of the mind. We often see a person of great understanding despoiled of all his wisdom and in a state of lunacy by the violence of a fever, the poison received from the bite of a mad dog, &c. For God, when he formed matter out of nothing, assigned to it laws whereby things move, combine, vary
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one from another, and perpetually subsist. Man he formed an organized body, susceptible of innumerable motions, and liable to established laws. And though the course of the animal spirits is subordinate to our wills, it does not from thence follow, that such course is incompatible with the laws of motion, to which laws all essential and voluntary motions, discovered in matter, are conformable. Therefore man, being an organized body, made up of material parts more or less compacted, is subject to the laws of matter. The more compact parts of the body, called solids, contain the looser parts, called fluids, and all diseases arise from the system of the solids and fluids intended or remitted in their motion, above or below the standard of nature; for a due proportion of tensity or firmness with a proper degree of fluidity, constitutes the happy medium in which perfect health consists, and every deviation from that standard incurs a proportionable degree of disease. When the solids cease to contract, the motion of
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of the body soon ceases with it, and when the motion ceases, the fluids stagnate and putrify. For a due fluidity of the blood does not depend entirely upon the blood itself, but upon motion impressed upon it by the action of the solids, which breaks, and subtilizes and fits it for passing through the finest tubes, and for performing the secretions and excretions necessary to preserve the body in health. An excess over or below that standard produces diseases of one kind or other. When once the equilibrium between the solids and fluids is broken, the machine must be shattered. In a healthy state, the solids are endowed with such elasticity as gives the blood a regular motion, assimilates and duly mixes the fluids, and keeps up the regular secretions and excretions, all the motions are regular and uniform, the heart contracts regularly, the arteries beat proportionably, and the whole animal oeconomy glides on in a calm uniform and uninterrupted course. Then the body is in the center of perfection, and
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the ballance inclines to neither side. If the solids are too lax, the heart beats slowly, the arteries contract proportionably, and the blood moves slower than is requisite to attenuate and prepare it for secretion. The vessels are clogged with viscid humours, obstructions are formed, the secretions are interrupted, the person becomes weak, languid, heavy, dull and melancholy, and various diseases ensue according to the part of the body where the obstructions are formed, and according to the degree of obstruction. The food we eat must be sufficiently concocted and digested into good chyle by the action of the stomach and bowels, and perfectly assimilated and conveyed into our nature. Therefore a certain determinate force is required in the stomach and bowels to digest and reduce our aliment into good chyle; but if that force or strength of the vessels, that constitute the human frame, is feeble, impaired, and weakened, their actions upon the contained fluids will be lessened, the chyle will be imperfectly attenuated
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and prepared to be converted into good blood by repeated circulations, the impulse of the fluids against the secretory ducts will be languid, secretion imperfect, and there will be a defect in something necessary to perfect digestion and nutrition. A languid circulation will therefore occasion a lentor and viscosity in the juices, and from a lentor in the juices, and a diminution of their secretions, obstructions will be formed, and the disease will be diversified according to the quality of the obstructing matter, which may be either partial or total, and occasion a marasmus or consumption, jaundice, dropsy, rheumatic pains, carious bones, corruption of the ligaments and joints, with an innumerable train of other languishing disorders, our greatest pain and dread on this side of the grave. What ought to be expelled will be retained, the excrements will not be thrown off with due force, and in sufficient quantity to purify the juices, which will necessarily become viscid, sharp, putrid, and ill-conditioned, the

body will be filled with noxious humours, and not properly nourished, because the solids, being too lax and weak, do not convey the fluids with sufficient force to reach, adhere, and apply themselves from whence the waste is made. For there always is, as I said before, something flying off from the surface of our bodies by the constant reciprocal action and re-action of the solids against the fluids, and the fluids against the solids. And the attrition of the solids against the solids, and the fluids against the fluids must rub off and consume something, and the secretions and excretions consequent thereon must occasion a waste, which must be restored and replenished out of what we eat and drink, being first so changed by the actions of life and health, as to become similar to the solids and fluids from whence the waste was made, otherwise strength will be impaired. Therefore if this change is not perfected, the nutritious matter will acquire a depraved disposition and become unfit for nourishment. For the chyle
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we know must circulate some time in the mass of blood, till, by repeated circulations and the action of the vessels thereon, it acquires the same state. Now it is evident if the circulation is languid, the contractile force of the vessels weakened, a complete assimilation cannot be made, and of consequence the body cannot be nourished; as parts must be supplied by parts similar to those from which the waste was made, i. e. by our own humours perfectly assimilated into our own nature, which as they circulate through their channels, stop, adhere, and fill up the vacuities. Hence comes the necessity of that plastic quality observable in the blood, serum and its excretions, that it may become sufficiently adhesive. But when the blood loses its due fluidity and balsamic quality, all the juices in consequence partake of it and become filled and crowded with hard concretions of the nature and quality of those with which the blood abounds, and being thus unnaturally nourished and repaired,

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will stop, stagnate, putrify and form into acrid corrosive humours.

If the solids are too elastic, the circulation is carried on with too great force and rapidity ; instead of that calm, uniform manner in which the functions of the animal oeconomy are naturally performed, the solids contract more forcibly upon the contained fluids, which by the heat and friction are much rarified, attenuated, and subtilized, whereby they lose their finer parts, nor will a sufficient time be allowed for the nutritive matter to adhere to the places where it is wanted, and the ballance between the solids and fluids is taken away. Hence inflammatory diseases, high fevers, stone, gout, madness, hectic and other acute disorders, which are in proportion as the solids and fluids exceed the standard of health ; and according as the symptoms arise from this or that general cause diseases receive their names ; for the names of diseases are only technical terms, expressing

pressing the state of the solids and fluids.
 In order therefore to preserve health it is
 absolutely necessary that an equal motion
 in the fluids and an equal resistance in
 the solids should be preserved; and as
 another condition of health it is also
 required, that our fluids be mild and
 smooth, void of acrimony to destroy the
 vessels, and of a due consistence and
 easily moveable through the smallest ves-
 sels. It is very true, the fluids cannot
 be in an unhealthy state without affect-
 ing the solids, for the solids receive their
 nourishment and growth from the fluids;
 for there is no point of the human body
 that is not vascular, and through which
 there does not flow a liquor, and the
 larger vessels are made up of smaller ones
 adhering to one another by the interpo-
 sition of a mucilaginous glew or juice,
 and these by smaller ones in a constant
 gradation, till you come to the smallest
 and last vessels, which are made up of
 the most simple fibres, and are nourished
 by the finest and most subtilized fluids in
 the body. Therefore the solids must

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suffer with the fluids. But in all diseases the fault is first in the fluids. There are some that have by nature a loose, weak, and delicate texture of body, and upon that account are very liable to illness from a very small degree of intemperance and irregularity, bad unhealthy food, &c. Yet if none of these things happen, the solids will preserve a due degree of tone, consistence, firmness, and elasticity, necessary to the perfect performance of the animal functions. Hereditary diseases are no exception to this doctrine, because intemperance in the first sufferer brought on the disease. In order therefore to preserve health, it is absolutely necessary that an equal motion and consistence in the fluids and an equal resistance in the solids be preserved, not only in the larger vessels, but even in the very smallest; for when this equal motion and transflux is impeded, the animal oeconomy is more or less disordered, according to the degree of impediment; for all the vessels and fluids have a necessary connection. If a fluid in any
part

part of the body is retarded or accelerated in its motion, it communicates the change to all the other parts of the body. A stoppage of some natural evacuation, as the courses in women, if the humour retained is not thrown off by some other outlet, must cause a plenitude, which plenitude distend the vessels beyond their usual dimensions, and cause debility. If the urine is retained in the bladder too long and in too great quantity, its coats are so far stretched, that they lose their power to contract and expel the water. And if the fluids offend in quality, they incur a necessary change in the body.

WHEN the juices are too thin, they are unfit for nutrition; when too thick, they cannot pervade the vessels through which they are required to circulate. If too acrid, they will be more apt to cause an attrition from the parts than to afford supplies thereto. Yet a certain degree of acrimony is perhaps necessary, as well as the action of the solids, to

keep them in a due degree of fluidity ; a certain quantity of acrid particles in men's blood is necessary to stimulate the vessels to perform the secretions necessary to health ; for though a redundancy of salts is the cause of many diseases, yet if there is not a sufficient quantity to stimulate the vessels into action, the fluids languidly circulate without being perfectly secreted. In a diabetes the urine begins to flow without this salt, which abounds in the urine of all healthy persons. The urine in this complaint resembles honey in sweetness, and the tone of the kidneys, being deprived of its necessary stimulus from the saline particles, becomes more and more relaxed, and the capillary vessels are weakened to such a degree that they pour off the urine in a copious and almost uninterrupted stream, till at last it sometimes flows out mingled with the chyle. If the blood and juices are viscid, putrid, and ill conditioned, then the blood will be retarded in its circulation by a greater pressure upon the sides of the vessels, and obstruc-

tions are formed in the small capillary ones, which, by rendering them impervious, force a greater quantity of juices upon the pervious ones than they are accustomed to drive about, and so by degrees loosen the texture and relax the tone of the solids, a great coldness is thereby brought upon the body, which as it were congeals and coagulates the juices and gives rise to many complaints. If the solids preserve their firmness and rigidity, then the velocity, heat, and friction of the parts are increased, the body feels an unnatural heat, which inspissates the blood by evaporating the fine spirituous parts, obstructions are formed, attended with inflammation, heat, fever, pain, &c. in the affected parts, which having its vessels distended, if the obstruction is not soon removed, burst the vessels, and an extravasation of the fluids follows. Therefore as the vessels arise two ways from the arteries, either directly as the veins, or obliquely or laterally as the glands and secretory vessels, which are less than the veins and

arteries, if the juices are thicker and more viscid than by the laws of nature they ought, whether it arises from relaxation, inspissation or coagulation, what ought to be absorbed, separated, and secreted, can by no means enter the orifices of the glands, but goes directly into the veins, and so the secretion is lost, and the secretory vessels will either close from a deficiency of the distended fluid, and the body will be filled with morbid juices, or the vessels will tumify, relax, and burst, from too great a distension of their sides; hence lentors and cohesions, sluggishness, and inaptitude to motion, tumours, polypusses, swellings, consumption, jaundice, dropsy, rheumatic pains, carious bones, corruption of the ligaments of the joints, with innumerable train of other languishing disorders, which are diversified according to the different qualities of the offending matter and offices of the part affected; for obstructions may be either partial or total. If the lentor and viscosity particularly affects the heart, and the blood falls into a

grumous

grumous consistence in the auricles of the heart, a solid mass resembling leather, called a polypus, is formed. If the seat of the complaint is in the small arterial vessels, an inflammation is produced, and the finer part of the blood stopping in the small arteries, sometimes exhales through the smallest lateral vessels, if they too are not obstructed, otherwise it stagnates and putrifies. Hence pustles, gangrenes, and various other diseases. If the broad and first orifices of the lymphatics are principally affected, then a polypus or white gypseous hard matter is formed. If at their extremities, a dropfy and white vesicular tumour or oedema arise from the distension of the vessels by their own pellucid liquor, which if it burst their sides, and is extravasated, then comes a leucophlegmatia or anasarca, and from the acrimony which by stagnation it contracts, imposthumes and gangrenes are formed; and if the more fluid part is squeezed out and the thick matter unites, a schirrus is then produced, which if the matter

which

is moved, terminates in a cancer. In case a great quantity of vessels is destroyed by the vital power and obstinate obstruction, then a sphacelus or mortification of the part ensues. If the disease is in the extremities of the finer vessels, then the nerves are not supplied by a sufficient quantity of well conditioned fluid ; hence various nervous symptoms.

WHEN our fluids are too thin and their parts much divided, then the circulation is accelerated, the heat increased and the blood rarified and subtilized by the heat and attrition of the parts, and being so much divided, as to the bulk of its particles, passes more easily from the arteries into the veins, than into the lateral vessels, which, being deprived of their proportion or quantity of fluid, and not having their sides duly distended, wither and collapse, and at last become fibrous stamina ; the veins being over distended with a fluid not properly assimilated, contract themselves more forcibly, and by attrition produce an unnatural heat, which

which occasions acrimony, and bursts the vessels. The increased velocity of the blood and the unnatural attrition of its parts greatly increases acrimony, by changing the mild, smooth, and globular parts into sharp pointed, acrid, and stimulating salts. Resolution too very much promotes acrimony; for the blood, being resolved and freed from its globose texture, becomes acrid. If the blood of a healthy person is kept some days in a vessel, it becomes foetid and very acrid; whence it is evident the blood putrefies by stagnation. For putrefaction consists in a separation, resolution, or disunion of the parts of matter, which being volatilized and attenuated by heat, lose their finer parts, and what remain coalesce as if they were condensed by cold. Hence schirruses arise from too much heat as well as too much cold. When the blood receives this acrimonious quality it corrodes, tears, and destroys the tender and delicate vessels, and occasions acute pains, corrosive, scorbutic and cancerous ulcers, and sores all over the body; and by its
corrosive

corrosive quality it pricks and twitches the nervous fibres, and thereby throws them into spasms and convulsions ; and the solids being stimulated and corroded, occasion the circulation to be carried on with too much hurry, and the blood loses its due fluidity and balsamic quality, which is consumed and burned up by the corrosive and acrimonious salts, which are forced into the small capillary vessels, designed to receive the lymph or thinner part. Some great and noble vessel is attacked, spoiled, and destroyed, various diseases of the inflammatory kind are produced, as hectic fevers, consumptions, gout, erisipelas, rheumatism, &c. And the blood vessels being burst and corroded, occasion hæmorrhages, and the solids being weakened, relaxed, and broken, suffer the thin acrid serum to ooze through their substances ; the small lymphatics, by the force of the circulation and by the acrimonious quality of the fluids, are mangled and torn, then imposthumes, gangrenes, mortifications, &c. follow. If these causes are in a less degree,

degree, and advance by slower steps, and the person indulges himself in indolence and laziness, then the solids get more and more relaxed, and all that horrid, gloomy, and persecuting train of nervous complaints, the very bane of human life, ensue.

CHAP. VI.

Theory in Physic not founded upon established Principles. The pernicious Effects of much Medicine pointed out. Nature proved to be the best Physician.

BY the rules of the animal oeconomy it is necessary that the fluids have a due consistence and balsamic quality, and that the ballance between the elasticity of the solids and the resistance of the fluids be kept up, to preserve the individual in health; and if from any cause the ballance is destroyed, then the individual suffers in proportion as the solids and fluids are removed from the standard of health. Now as God has assigned to matter certain established laws, if we were perfectly acquainted with the nature and qualities of every fluid in the animal body, and that in every disease they were all in the same state and consistence, no matter whether the disease arose

arose from acrimony or visciditv, and if
 all the solids were equally relaxed or
 braced, then indeed we could proceed
 upon principles in the cure of diseases.
 But unfortunately for the poor sufferer,
 we know too little of the nature and
 properties of the animal fluids to speak
 with any great degree of certainty of
 them; and the fluids in almost every
 disease are in some parts of the body
 acrid and too thin, while in other parts
 of the same individual they are too viscid;
 the solids are too tense in some places,
 and over lax in others. This occasions
 various diseases, which have their names
 from the different parts affected, and is
 the reason why things good for one part
 of the body may be hurtful to another.
 A due consideration of the state of the
 solids and fluids, is, no doubt, a matter
 of great importance to physicians, not
 only in chronic, but also in acute diseases.
 Suppose, for example, that the juices are
 sound and good, but the solids are laxer
 and weaker than they should be, then
 the digestion, circulation, perspiration,
 and

and secretions will be weaker ; the food will not be sufficiently broken and digested in alimentary tubes, the blood not sufficiently divided by the force of the circulation, nor the excrements thrown off with due force and in proper quantity to purify the juices. Again, suppose the blood and juices are viscid, sharp, and illconditioned, the fibres in the mean time subsisting in their proper tone, then obstructions will be formed in the capillary vessels, which will, by degrees, break and loosen the texture and relax the tone of all the solids. This is good and plausible theory, but such as can never be verified in fact, as these two suppositions can never happen in nature. For the fluids can never be in a healthy state when the solids are too rigid or too lax ; neither can the fluids be all acrid or all viscid, nor the solids all lax or all tense. All these causes conspire in some degree to form every disease, but according as the symptoms arise from this or that general cause, they receive their names from physicians, and the particular

particular symptoms indicate the height and severity of the disease. For a disease cannot exist without symptoms, or symptoms without a disease, which is known by its effects, and these effects must necessarily have their causes. But our knowledge of causes is very imperfect, and our reasoning upon them must consequently be attended with much uncertainty. By the laws of mechanics, it appears that the force of any solid bulk is as bulk to bulk, and as the force, so is the resistance of one body to another as bulk to bulk, therefore the proportion of a solid to a contained fluid increases as the vessels grow narrower. Hence the circulation in the smaller vessels ought to be very rapid, which is so far from being true, that it is very languid and irregular. In the larger arteries and blood-vessels the circulation is, I believe, pretty regular, but in the smaller vessels it proceeds as it were by sudden and irregular fits and starts; in some parts of the body it circulates, while in others it may remain quite stagnant. 'Tis a very com-

mon symptom, particularly in nervous diseases, to perceive a throbbing and beating as if something was alive, in one part of the body, which arises from the fibres of the vessels contracting themselves more forcibly in order to throw off some offending matter, which was formed by the fluids remaining too long in that part by reason of the relaxed state of the solids, which in truth is the case over all the body. The circulation is quicker and slower, and perhaps stagnates in the same person in different parts of the body at the same instant of time. In some parts the coats of the vessels may be much relaxed, in others tense; in some the fluids may be thin and acrimonious, while in other parts of the same body they may be viscid. Obstructions besides those of the scirrhus kind may be of a long standing in the body, without tending to either inflammation or putrefaction, and the person will not perceive the least uneasiness from them, provided they are suffered to lie dormant; but as soon as they are opened
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and the obstructing matter put in motion, it then changes its innocent indolent nature, is converted into a very active and hurtful one, which affects the juices of the body somewhat like the virus of the small-pox. Therefore when the obstruction is opened, the morbid matter ought quickly to be evacuated.

THE human body is an excellently contrived machine which performs innumerable operations far beyond the reach of our conceptions. After duly considering the frame and texture of the human body, its constituent members and component parts, with their several offices, functions, and operations, we fancy we conceive, how the commixture of substances, the solid and fluid parts, the digestion of the food, the process of chylification, and sanguification, the changes of lymph into blood, and the blood into serum, &c. are performed. But alas ! our knowledge is very imperfect, and sometimes very delusive. Yet if we observe the physical writers we

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find

find that they speak of the nature, qualities, and mechanism of the human body with as much confidence as a watchmaker would of a watch, or a chymist of an alembic, or any other utensil in his laboratory. The slightest look into anatomy will convince us that we are not clock-work, or such machines that have a peculiar pendulum or regulator to govern our motions by. Our great ignorance of the animal machine is conspicuous in almost every thing we do. For example, the most judicious and experienced surgeon has it not sometimes in his power to check a very trifling inflammation from producing matter; and again, when he wishes to bring on a suppuration it defeats all his efforts, nature rejects his counsel, refuses his offers, and laughs at his folly. And if this be the case in external inflammations, where we have the advantage of local applications, its not to be wondered at that she often baffles our best designs, or rather what we think to be best, in the treatment of those within. Our know-

knowledge of the fluids is too limited to enable us to determine in what manner those changes are produced ; and if we speak ingenuously, we cannot avoid confessing, that we are but imperfectly acquainted with them in their natural state, how then can we presume to speak affirmatively of their morbid, and explain the degrees of alteration they undergo ? The reader, who is fond of hypothesis, will not relish this unpleasing confession, but the candid and experienced will allow its due force, and be content with what his senses teach him, without losing time in vain reasoning and endeavours to account for phenomena, which perhaps may ever remain inscrutable to us.

OUR most plausible theories are often precarious and delusive, for they rather tend to confound than improve the judgment, and to obscure an art, that should be chiefly founded on penetrating observation and faithful description. One Sydenham, a faithful recorder of facts,

has merited more by observing and following nature, attending to the life what his eyes saw and fingers felt, than all the hypothetical writers united. As a proof of this, we need only recollect the numberless ridiculous and inconsistent theories that have successively sprung up, all which had their patrons for a time; but dwindled by degrees into disrepute and oblivion, in proportion to the advances of more plausible conjectures. We talk of alterative medicines, and presume to account for their manner of operating; but 'till we are better acquainted with the nature of the fluids circulating in the animal body, we can talk with little propriety of the acrimony of the juices, or their depraved state. Nor can we conceive how a few grains or drachms of most medicines given for that purpose can act upon them, when blended with so much of the animal blood and juices; and to reason upon it is as unintelligible as the black witches and white witches in Macbeth. Indeed the remote causes of internal diseases and
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the operation of medicines beyond the stomach and bowels remain yet, in most instances, merely conjectural, and perhaps in many cases entirely unknown, yet every grain of certainty in physic will ever be received with transport, when we consider how little absolute certainty we really possess. Any person at all acquainted with the power of medicines, even from his own experience, knows how extremely difficult it is to ascertain their medicinal properties, as the same medicine has different effects not only in different constitutions and different diseases, but also in different stages of the same disease. In short, there are so many circumstances to which we either do not or perhaps cannot sufficiently attend, which vary their operation and effects, that we are frequently disappointed in our expectations even of those medicines with which we are best acquainted. And when we come to compare the virtues so warmly and positively ascribed to particular medicines with our own experience, how miserably

do we find ourselves deceived? In truth, nothing is so difficult to ascertain as the true virtue of medicines; our fondness for many of them too often rises in proportion to our own credulity, ignorance, and prejudice. It gives, I must confess, but an ill impression of physic, to see medicines have their fashions, as the cut of a coat and the cock of a hat; yet I do not mean to degrade the art of physic, being fully satisfied that art, judiciously applied, may often assist nature by means of a very few simple medicines, yet I am at the same time well persuaded, that much medicine, or an injudicious jumble of drugs, is only a load upon the constitution, and frequently defeat the very intentions of nature, which of herself, or with very little assistance, would in general soon work her own deliverance; but when a load of supposed remedies are added to the disease, they act hand in hand, and from their aid the disorder becomes too violent for nature long to support itself against such opposition, and must at last submit and fall a sacrifice

fice to ignorance and blind credulity. The apothecary's shop is, in my opinion, the worst disease the human body is subject to. The bulk of mankind seldom or ever err in their judgment of things; accordingly we see that people in general dislike physicians, as such, and abominate the very thoughts of swallowing medicines. This arises from an inherent notion, strongly confirmed by observation, that physicians are of less service than they are willing to have it believed, and that medicines do sometimes more hurt than good. They frequently see them baffled in their best endeavours, and no wonder if they should so often miscarry, when the nature of the animal oeconomy is so imperfectly understood. Two thousand years are elapsed without any considerable improvement being made in the cure of many diseases; and we cannot help lamenting the uncertainty of an art which is not yet fixed upon the established principles of science. It is genius, and not the want of it, that adulterates physic, and fills it with error

and false theory. A fertile imagination despises the servile office of digging for a foundation, of removing rubbish and carrying materials; he leaves these mean employments to the poor drudges in science, and plans a design and raises a fabric. Invention supplies materials where they are wanting, and fancy paints it in beautiful colours. The work pleases the eye, and nothing seems to be wanting but solidity and a good foundation. In grandeur and invention it seems even to vie with the works of nature, 'till the malignant hand of some succeeding architect tears it up from the foundations, that he may build a goodly fabric of his own, equally airy and superficial. If therefore to unravel the cause of every disease is not in the power of the human mind, if the labyrinth is too intricate, and the tread too fine to be traced through all its windings, would it not be acting more prudently to suppress vain curiosity, and not presume to fly on the wings of fancy, into the secret recesses of nature? Had the generality of physicians,

ans, who for ages past have racked their brains to no purpose, in order to discover remote and latent causes, made simple and obvious effects the rule and scope of their researches, what a fund of useful knowledge would have been amassed together by this time. It may seem strange that in so long a period they should not have perceived that they have no faculties adequate to such sublime enquiries, but that all the truly useful knowledge they can ever hope to gain is only to be had from observation and experience, every thing else being liable to be controverted, as existing only in imagination. Whatever others may think, I am fully persuaded that the secret operations of nature are better illustrated by the manifest light of fact and experience, than from any dazzling theory of the most brilliant imagination; these alone can direct us safely in our researches, while the latter, like an ignis fatuus, will mislead us if we depend too much upon such illusions.

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THAT I may not seem to say all this without sufficient reason to warrant it, I shall here produce a few instances out of many to shew the uncertainty of theory. One physician will tell you, that the seat of all diseases is in the fluids ; another says No, all diseases arise from some fault in the solids. One advises a good deal of bread with our meat and a glass of wine after it ; presently appears a Cadogan, who says, such a practice is absolutely poison and certain death. In short, so remarkably are physicians divided about the wholesome and unwholesome, that there is not any one thing a person eats or drinks that is not recommended by some and condemned by others. Some pretend to give elective physic, that will purge and carry off any particular humour, as choler, phlegm, melancholy ; but this doctrine was soon exploded as ridiculous and whimsical, and purgative medicines are now supposed to differ only in degrees of strength, and operate no other ways upon different humours than as they stimulate
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more or less. The small-pox by some is supposed an inflammatory fever, by others a putrid. One physician tells us that the gout arises from a defect in the solids, while others believe it to arise from an acrid humour circulating in the blood. I remember since all diseases were called nervous, and every pain gouty. Some will have every disease to arise from worms, and dream of nothing but them. Our ancient physicians, for whom the moderns have so great a veneration, were much upon a level with the present in their knowledge of diseases, if we impartially examine their writings. Hippocrates or Galen, two venerable gentlemen, notwithstanding the latter writ two hundred volumes, made full as many blunders as our modern practitioners, who have their favourite diseases and medicines; yet I must confess, and in honour of Hippocrates be it said, there is not a symptom in any disease, which he has declared mortal, that is not at this day found to be so. The occult qualities which the primitive physicians were

were so fond of, were their very good friends, and assisted them with many a dead lift, though occult qualities, innate ideas, &c. are the mere cobwebs of the brain. Some say, that the origin and cause of a pus, or matter, is produced from the dissolution of some of the solid parts of broken capillary vessels, and a mixture of some part of the juices circulated through them, and never happens without some degree of erosion, and some breach or division in the natural structure of the parts. In abscesses it is supposed to be formed from the fluids oozing out of the ruptured vessels, which have undergone their utmost distension, and are forced to yield to the fulness and obstruction formed in them. In wounds the matter is supposed to issue directly from the divided blood vessels, constricted so as to retain the red blood, and to suffer only the serous part and lymph to pass. To this doctrine another objects and says, was it only the simple effusion of the serum and lymph escaping through the mouth of the divided blood and lymphatic

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tic vessels, as in fresh wounds, it ought to be the greatest at that time, and to diminish as the constriction of the blood vessels becomes gradually greater. But the reverse of this is the truth, for as soon as the flux of blood ceases in the divided part, the first discharge is generally very small and sparing, and sometimes wholly wanting, but as soon as warm dressings are applied, the discharge of pus is greatly promoted. He therefore is inclined to think that pus or matter is the serum of the blood converted into a different humour by some more complicated means than that of passing through the constricted orifices of the blood and lymphatic vessels, seeing it recedes most from the nature of serum when it is most copiously discharged, which ought to be quite the reverse, if it was nothing but serum passing through the orifices of the ruptured or divided vessels. To account for the difference of pus from serum, and its greater specific gravity than the serous part of the blood, it has been asserted that

that pus was formed of the serum of the blood mixed up in the wound with the abraded parts of the solids. This supposition he also rejects for this reason, because at the time the pus is most perfect, the solids are so far from appearing to suffer by such abrasion that they are in an increasing state, and instead of the destruction of the old parts, which must be the case if they furnished matter to the pus, the generation of new flesh always attends ; so that well conditioned pus is made up of juices only, not of a mixture of fluids and solids. Hence he concludes, that pus is produced by a joint mixture of serum with a fatty substance, or with that gelatinous fluid of the tela cellulosa, which is generally found to be the seat of purulency ; by this supposition the quality, consistence, and specific gravity of matter may be accounted for. But this conjecture, how plausible soever, cannot account for the formation of pus upon the membranes within the body, as the pleura, peritonæum, &c. without
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any apparent breach or dissolution of the solids.

THE famous dispute between the Galinists and chymists is even yet not satisfactorily determined. The Galinists maintain that diseases ought to be removed by evacuation, and by carrying off the offending matter by bleeding, purging, &c. The chymists condemn that practice, and say, that nature is thereby debilitated and rendered unable to cope with the enemy, which acquires more and more strength, as the powers of nature are proportionably weakened. They say that in all diseases nature is in a hurry and tumult, which arises from the efforts and struggles she makes to relieve herself, which must terminate in a crisis one way or other, therefore they maintain that the best way to cure diseases, is to assist the powers of nature to throw off the offending matter. Here are two opposite theories, each of which is in fact, partly true and partly false. In inflammatory diseases and in plethoric habits,

habits, it is necessary to begin by evacuation according to the strength of the patient and height of the disease, and then to assist nature by stimulating deobstruent medicines, to throw off the remains of the complaint. As all motion in the animal body arises from irritation, so all medicines operate by increasing that irritation, therefore the more subtilized and finer the component parts of a medicine are, the more efficacious it will be, because from the minuteness of its parts, it is adapted to reach the finest vessels, where the obstructions are principally seated. I believe there is not in nature a medicine better adapted to act as a deobstruent than the powder, I shall have occasion, by and by, more particularly to mention.

VARIOUS are the opinions concerning the manner in which bleeding is stopt. It has been long received as an established doctrine, that upon shutting up the mouths of considerable blood vessels by ligature, styptics, or pressure, nature forms

forms a coagulum at the extremity of the vessel which prevents any future bleeding; but M. Pouteau refutes this doctrine, and has substituted another in its place; he says that the swelling of the cellular membrane which surrounds the artery both above and beneath the ligature, forms a much stronger dam at the extremity of the artery than any cake of blood can do, as it soon produces an induration upon the circumference of it. This certainly is a very important point in practice, and in which surgeons are by no means agreed. Some are for including a large portion of flesh with the ligature, others a lesser portion, and some none at all. The principal objection to the ligature, which includes a portion of flesh, is, that sometimes it takes in the nerve or some tendinous or aponeurotic expansions, in consequence of which, it is said, the great pain, inflammation, and convulsion, frequently ensue. But the great Haller affirms, that the tendinous and aponeurotic parts are absolutely

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insensible,

insensible, contrary to the long established doctrine of these parts being not only very sensible, but the very seat of sensation itself.

IT was disputed, and is not yet absolutely determined, whether the human calculus or the chalky matter, that remains in the joints after a fit of the gout, partakes of salt or not. Chemistry has not I believe been able to obtain the least grain of salt in it.

AGAIN, the very fundamental principle of all physic is not uncontroversibly settled. Some affirm that all medical substances operate by their specific gravity, that is, by that natural ponderosity and heaviness that presses a particular body or substance, together with whatever matter it finds in its way, downwards or towards the center. Physicians that adopted this hypothesis, gave large quantities of quick-silver in obstructions of the bowels, and thereby did perhaps
great

great hurt. For mercury in its own proper nature will never operate downward, unless some saline substance is joined with it; but besides it must ascend in a perpendicular direction, before it can pass through the bowels. Others say, that by the best and most accurate anatomical observations, it appears that all medicines continually advance towards the circumference. In dissecting of subjects, who in their lifetime, dealt pretty largely in mercurial preparations, we find that it has left little holes in the vessels or outlets through which it has passed in its operation; which plainly indicate that mercury in its operation advanced in a progressive course from the center or stomach to the circumference.

LEUWENHOECK, in the membranous expansion that serves instead of a wing to a bat, has observed the first tendency to resolution in the blood, which had been totally coagulated by cold. At first he could perceive no motion either

In the arteries or veins, until the animal, reviving by degrees, he beheld an oblong mass of concreted blood which filled the whole cavity of the artery, begin to move backwards and forwards in the vessels, which by their successive contraction gradually dissolved the coagulum so as to render the whole fit for circulation. Now let us hear the other side, and attend to a new theory of inflammations. Boerhaave, whose theory of inflammation has been the established doctrine above these forty years, says, that whenever there is a swelling attended with pain, heat, and throbbing of the part, there is more or less obstruction in the vessels, through which the fluids should circulate. This is either caused by their too great thickness, which prevents their free passage through the vessels, or by the force of the circulation, which impels them into those vessels where they ought not to enter. These are the first general sources, according to Boerhaave, of all inflammations. This he thinks is most evident

evident in an inflammation of the eye, where the red blood, in the white of the eye, is forced into vessels, designed only to receive the lymph or thinner parts of the blood. Whenever therefore an obstruction is once formed in the capillary or small vessels of the body, whether sanguinous or lymphatic, a swelling is produced, which is gradually increased by the impediment the fluids meet with in the obstructed vessels. Hence arises a total stagnation in some, and a partial or slow circulation in others, and unless this obstruction to the passage of the fluids be soon removed by nature or art, the vessels having undergone their utmost distension, will be forced to yield to the load of the impacted fluids, and at last to burst; and in this case, a suppuration or collection of matter is formed in consequence of the fluids issuing from the ruptured vessels; but if they continue shut up without giving way so as to prevent the ingress of the fluids, which should circulate through them, a mortification

fication is produced. This account was
 thought to be so simple, just, and plain,
 as probably to remain as unalterable as
 nature itself. But alas ! such seems to
 be the fate of hypotheses, that there can
 be no dependence on their permanency ;
 for a new theory of inflammations is
 now established upon the ruins of the
 Boerhaavian and all former systems. The
 patrons of this new invention agree with
 him, that the cellular membrane is the
 most common seat of inflammations ;
 but that they arise from a particular spas-
 modic state of the nerves and blood ves-
 sels occasioned by continued irritation.
 Thus a thorn externally lodged in the
 finger will frequently bring on a great
 inflammation. In this spasmodic state
 of the nerves, their sensation is increased
 to such a degree that their perceptive
 power, which before was indifferent or
 pleasing, becomes uneasy and painful.
 These effects may be produced by any
 irritating substance applied to or lodged
 in the body. Inflammations of the in-
 ternal

ternal parts depend upon the retention of some acrimonious humour or obstructed perspiration, which falls upon some particular viscus or membranous parts; by its stimulus, the contraction of the smaller vessels will be necessarily increased, and consequently a greater quantity of fluids will circulate through them; hence the force of the blood will be greatly increased, the vessels themselves dilated and distended, and those which have orifices opening into the cells of the adipose membrane, and which naturally exhale a thin fluid only, will now suffer the red blood to pass through their extremities into the cellular cavities. This extravasation of the blood into the cellular membrane has been demonstrated by Haller in different inflammatory affections. They say further, that it is contrary to observation to believe that an inflammation should succeed to an obstruction without a previous irritation. In short, they will have it that the heat, pain, tension, swelling, and obstruction of the circulating fluids,

are symptoms that arise in consequence of spasms, and are not produced originally by a viscid state of the blood, obstructed in the capillary vessels. An increased circulation in the larger vessels is also a consequence, not a cause of inflammation, since if the inflamed swelling be considerable, the whole nervous system will be affected by pain, the heart and large arteries will become more irritable, and their contractions more frequent and strong. This last hypothesis seems rationally to account for inflammations; for if chylification, circulation, &c. is carried on by irritation, then by increasing that irritation, the circulation will become unnatural, and the secretions and excretions irregular.

HOWEVER from this diversity of opinions, in almost every branch of the science, we may reasonably conclude that the causes of diseases are and perhaps will remain out of the reach of our knowledge. And though hypothesis and conjecture

jecture may serve to amuse the imagination, yet it is observation and experience only that can inform the understanding. The former may make a man entertaining to a few, but the latter will render him useful to many. Insuperable difficulties there are which must attend our feeble efforts in endeavouring to account for the several phenomena in nature. Not less difficult perhaps is the task of reconciling the influence of the nerves upon the blood vessels, than of the passions of the mind upon the body. And will any one presume to account for any of them? Many circumstances might be produced to shew our ignorance of the operations of nature and of the mechanism of an animal body formed by an almighty artificer. Many things must be referred to the original constitution of our frame, or the laws of union between the soul and body; nor should it be wondered at that we can scarce guess with tolerable probability at numberless phenomena in the human machine, when it

is no more than what occurs to us daily in our enquiries into the obscure operations of nature. If this then be the case, it behoves us therefore to be upon our guard against speculations of this kind, as a fertile brain or luxuriant imagination will otherwise while it amuses frequently impose upon us; and we are too prone to embrace such physical illusions as flatter our vanity, when the reality is not to be attained.

MEDICINES fare the same fate as diseases; sometimes one medicine is in vogue, and sometimes another. Some say the practice of physic would not be worth following, if it was not for the jesuits bark, others believe the whole art lies in the use of opium. The present fashionable medicine is fixed air; by and by something else will appear and have its time. I would not from hence have the world believe that I undervalue medicine in general; no, I am thoroughly convinced of the power and efficacy of medicine

dicine when judiciously applied in nature's aid; for our good friend Nature, with time and patience and a little assistance, as she calls for it, performs more cures than all the physicians put together, and this the wisest practitioners know. The human species would certainly enjoy a greater share of health, if there were fewer physicians and less physic. And I cannot but admire the prudence of the Roman emperor who excused the physicians from the banishment, which he intended to the rest of the people. When he was asked why those gentlemen should be better used than the rest, he answered, *If I banish the Physicians, Rome will soon grow too populous.* The nature and cause of a disease is often mistaken, and one disease goes for another, whereby many great evils are brought about. The physician may be often compared to the person, who being in exquisite pain took a dagger to stab himself, but in place of killing himself, opened an imposthume, the unknown cause of his

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pain, and so stabbed himself into health. This is the case sometimes no doubt, but it is oftener the fight against nature, beneficent nature, which is perpetually acting for our good and welfare; and is so desirous to preserve herself, that we see her, when disappointed of relief by one evacuation, instantly flying to another. When perspiration is obstructed, urine flows in great plenty. When the bowels are obstructed or the stomach loaded, reaching comes on, and so of all the rest. And I am well convinced that the author of nature hath formed these mouths, passages, and excretions, to afford a salutary discharge to all superfluous and noxious humours, when it was requisite for health; and I can assure you I had rather trust to the assistance of kind nature than to two thirds of the physicians; for I do sincerely believe that by paying proper attention to the non-naturals I should be in less danger without than with many physicians who dispatch recipe after recipe with no other intention than

than to plunder the apothecary's shop, and fill the patient's belly with a huge assemblage of all sorts of unpalatable messes, which interrupt and disturb nature in her salutary work ; and if, as good fortune will have it, she works her own deliverance, and proves too strong for the physician's prescriptions, as a reward for her labour she is robbed of her due praise ; for physicians frequently obtain a name for cures performed by accident, or by nature, which is the best and surest guide to a judicious physician, who will diligently and carefully follow her, because whenever she finds herself oppressed, she endeavours to dislodge the enemy, and for that end tries all the nearest and properest means ; and it is wonderful what a number of outlets and drains nature has furnished for the preservation of health, or the recovery of it when lost. Such are most or all the glands by which secretion is performed. And though it is the business of the physician diligently to attend to, observe and assist nature,

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yet she is not to be compelled, but must herself be the beginner, and ought very often to be the finisher of the work; yet many of our physicians would have us believe that nothing is to be done without the assistance of the apothecary's shop, and they run from one thing to another; as soon as one thing seems to fail, they fly to another, without sometimes giving those very medicines that would be of service, either time or chance to do good; and it would appear that they are more anxious to take a catalogue of the apothecary's shop than to recover the patient. And how can it be otherwise, when the *modus operandi* of medicine and the cause and seat of diseases are so little known? Physicians differ so often in their opinions, that it has given rise to the common proverb, *Doctors differ*. If you call two, or more physicians, 'tis ten to one if every one of them has not a different notion of the complaint, and if miraculously they happen to agree in their opinion of it, they will certainly differ

differ in their manner of treatment. If some ingenuous gentleman would write against the too frequent use of medicines, the public would be more indebted for such performance, than to the whole tribe of books wrote by Hippocrates, Galen, or any of their followers. As the worst of diseases is the apothecary's shop, in what a melancholy situation must the unhappy victim be when the physician is groping in the dark, and throwing in shoals of medicine; the strength of constitution will now and then get the better of it, and support the shocks of the whole medical artillery, like a fortification that is bomb-proof. All that I can say against the filling the patient's belly with medicines, will not, I fear, have its desired effect; because I know there are many so physically mad, that they believe they could not live one day without a medicine from the apothecary's shop; I know some that fancy they could not sleep one night, if the apothecary neglected to send their night-draught;

draught; and so great is their credulity, that if a little bread taken from their own tables, mixed up with some simple water and a little syrup, with a label tied to the bottle, it would answer extremely well. The family of the Wrong-heads is, and no doubt will continue to be, very numerous; and as there are many more fools than philosophers, therefore many physicians, that would willingly disabuse people concerning their credulity about physic, dare not do it lest they should lose all their practice. Accordingly the trading physician, being sure of the apothecary's support, sends a long prescription every time he comes, and expects a fee; and if the patient had only an imaginary complaint before, he is sure soon to have a real one. Some are so foolish that bolus after bolus, pill after pill, draught upon draught, will not satisfy them, except they have a frequent correspondence with the close-stool. Some are so very extravagant in their demands, that they have no opinion of their physician

physician except he goes through the whole exercise of shitting, pissing, spewing, sweating, bleeding, blistering, &c. and these people are never at a loss to find physicians to prescribe medicines in spite of nature and their stars. Yet there are no doubt some who will not barter their consciences for the golden fees, but will do honour to themselves and justice to their patients; who will act with caution and diffidence, and attend to nature as his best director, and hear with patience what the patient has to say, for he is the best guide to his physician, and shall, with my consent in most cases, be his own, so far as to direct what ought to be done, tho' he perhaps is ignorant of the means to accomplish it. A physician that pursues this course is not likely to get so rich, as one that talks and acts as conceitedly and dogmatically as if he saw your complaint as plainly as he does your face; for more people are taken with talk and

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appearance than with modest and different merit,

Distrustful sense with modest caution speaks,
But rattling nonsense in full volleys breaks.

The interest of the apothecary and physician are so connected that they play into one another's hand. The last never loses an opportunity to cram loads of medicine down the throats of his patients, and the other misses no occasion to recommend him, and the patient is crucified between two thieves, and remains a victim bleeding upon the altar, till he has made expiation to Avarice, the god of the descendants of Æsculapius. This inconveniency may be avoided by every family having their own physician, and allowing him so much yearly for his attendance. Then he will not be forced to comply with the mercenary hopes of the apothecary, as he will then be less dependent upon him. This mercenary practice has raised so great an aversion in mankind to physic and physicians, that

that sometimes when it might be of real use they cannot prevail upon themselves to take it. They observe, when physicians are ill they take few medicines, but put more confidence in nature than they are willing their patients should do; and daily experience teaches them how unsuccessful the most eminent physician's prescription proves, when nature withdraws her aid, and that in general she struggles as successfully for victory over the complaint, when left to herself, as when she has the united aid and skill of the wisest sons of Æsculapius. From hence they do hastily conclude that it is all a cheat and farce in order to pick the pockets of the credulous. Another inconvenience which attends the practice of physic is, the liberty which apothecaries take with the prescriptions of physicians in substituting medicines of the same virtues, as they suppose, for those in the prescription, when they have them not. It is also a dangerous thing to trust the making up of medicines, powerful in
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their effect, to raw unexperienced apprentices. I therefore think it right and not beneath a physician to have under his own care all the chymical preparations, and those of powerful effects, that he may know from what is given what he has to expect.

C H A P. VII.

Man by Nature subject to few Diseases.

Irregularity the general Cause of Diseases. Diseases simple in their Nature. Obstruction gives rise and is itself the source of every Disease, proved by an enumeration of the Symptoms of each Complaint; to which is added a Method of Cure in each particular Case.

An attempt to reduce Physic to certain established Principles.

WHEN I take a view of the brute creation I find that they are by nature subject to few diseases, therefore I conclude, that most of the diseases incident to man are the purchase of our predecessors and descend to us by inheritance, or are procured by our own intemperance. Observe the domestic animals, dogs, cats, horses, cattle, they are subject to very few diseases; and to what is that owing? It

is owing entirely to their having nature for their physician, temperance for their guard, and are not poisoned with the apothecary's shop. High feeding, rich sauces, luxury and intemperance are the cause of most diseases.

For most diseases

Dwell where luxury and ease is.

Luxury and idleness are sworn friends to the physician, and fancy and folly fill his pockets. One of the Scotch proverbs says,

The best physicians are doctor Diet,
Doctor Merriman, and doctor Quiet.

It is a shame, says the archbishop of Cambray, for man to have so many diseases. For a sober life produces sound health, and intemperance changes into a deadly poison, what was designed to preserve life. Immoderate pleasure shortens a man's days more than the best medicaments can prolong them. The poor are seldomer sick by the want of food, than the rich are by the excess of it. Meats that are too relishing, and which
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create an immoderate appetite, are rather a poison than a nourishment. Medicines in themselves are really mischievous, and destructive to nature, and ought only to be used upon pressing occasions : but the grand medicine, which is always harmless, always useful, is sobriety, temperance in pleasures, tranquility of mind, and bodily exercise ; by these the blood is sweetened and preserved in good temperament, and all superfluous humours are dissipated. This regimen will render medicine in a manner unnecessary, and the physician who recommends it will do much real service to his fellow creatures. O Temperance ! thou support and attendant of other virtues, thou preserver of health and restorer of it when lost, thou friend and companion of reason and supporter of the dignity and liberty of rational beings from the wretched and inhuman slavery of sensuality, thou brightner and burnisher of the understanding and memory, thou cordial of life, and sweetener of all its comforts,

thou companion of reason and guard of the passions, thou bountiful rewarder of thy admirers and followers, thy excellencies extort even a panegyric from thy enemies *.

I WOULD not be understood to mean that temperance will prevent or remove all complaints. No, as long as there are different constitutions there will be some healthier than others. One constitution is more or less liable to this or that distemper, according to the various dispositions of the fibres or solids, for some diseases are attendant upon a rigid, others upon a lax fibre. The gout, for example, which is unjustly called the opprobrium medici, may

* Plato says, " Multa corporibus incommoda propter intemperantiam accidere, contra vero bona plurima ex temperantia provenire. Temperantiam vocat Σωφροσύνην quasi salutem quandam & conservationem prudentiæ. Ideoque ab iis colendam esse docet, qui cupiunt vitam sælicem traducere."

may be either hereditary or acquired. One may be born with rigid tense stamina, and the coats of the vessels may be so elastic as to contract and narrow their internal cavities so much that the circulating fluid suffers too great an attrition and collision, and the gout or gouty particles are thereby formed in the blood, which circulate awhile in the constitution, and there accumulate, till by the strength and increased contraction of the solids, they are thrown upon the extremities, or lodged in some particular part of the body, and form what we call a gout. This rigidity of the solids or constitutional tendency to the gout may be artificially induced upon us by drinking spirituous or other intoxicating liquors, high food, rich sauces, &c. Again, a lax fibre may be either hereditary or acquired. One may be born with lax and delicate vessels, but most commonly it is acquired by eating more than the stomach is able to digest, for no part can be overstretched or overloaded without being

being relaxed and weakened, and the vessels being in that state, suffer the fluids to pass through them imperfectly secreted. This I lay down as the primary cause of diseases, except infectious diseases arising from bad air, &c. and upon this foundation my practice is built, and by viewing them in this light, they may be reduced to more certain and less intricate principles. For diseases are very simple in their nature, and arise from as simple causes, which when they are known, are in general not difficult to be removed if taken in time. 'Tis the symptoms that confound us, and are like the luxuriant branches of a well grown tree, all which arise from one root; if we can point a sharp instrument at the root, the tree falls, and along with it the branches. So it is in diseases, if we can apply a medicine effectual enough to reach the seat of the disease and remove the cause, the complaint gives way, and along with it all its symptoms; and if upon examination we shall find that most diseases flow from
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one common fountain, and have one or the same general origin, to wit, obstruction; and if at the same time we can find a few medicines that are powerful enough to open obstructions either of the viscera, nerves, glandular parts or minute vessels, which are most remote from the heart, we shall be able to remove every complaint where the constitution is not too far impaired to leave it in the power of medicine to restore it. The effect this one general cause produces is different according to the different parts affected, and so occasions various nominal diseases, which go by different names. Some are of opinion, that obstructions cannot be formed without a preternatural heat or inflammation, but that seems to be false, for no obstruction can produce an inflammation, except so far as it raises an unusual irritation, for an inflammation is not owing to an increased force of the heart and larger arteries consequent upon an obstruction, but to the increased oscillatory force in the small vessels,

vessels, whether it arises from some obstructed matter distracting their fibres, or from some acrid matter irritating them. Yet though the increased force of the blood in the larger vessels is not the cause of the inflammation, yet it is frequently the consequence of it. For as often as an inflammation is large, or the part inflamed very sensible, the whole nervous system will be sympathetically affected by the pain, as to render the heart and large arteries irritable, at the same time that the blood so vitiated by the obstruction, must act with a stronger stimulus than usual; accordingly we see in inflammations, the pulse is little changed till the disease has continued some time. Hence we see that in the cure of inflammatory complaints, besides diminishing the force of the circulation in general by blood-letting, the spasm upon the nerves must be removed by large quantities of antispasmodic medicines; and if the complaint is partly local, particular regard must be had to the

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the vessels affected, and topical anodyne applications must be used.

DISEASES, if not hereditary, or contracted by any evident cause, as contagious air, &c. make their progress in the following manner: First of all insensible perspiration is obstructed by the frequent erroneous use of the non-naturals, and the digestive power of the stomach begins to grow languid. Then the aliment is imperfectly digested, and a viscid phlegm by little and little adheres to the stomach and intestines; when these are beset with phlegm or putrid excrements, there can be no due secretion by the intestinal glands, insomuch that a crude chyle is carried into the blood, whence its temperature being vitiated, its circulation through the capillary vessels will be irregular, as well as the secretion of the humours through the glands of the whole body. In this situation those who have strong vital stamina, may by their assistance keep off the impending disease for
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some time; however at length, though by slow degrees, some acute or chronical disease appears, but of what kind, may be learned from the nature of the first error, the way of living or constitution. When the habit is plethoric, acute diseases are commonly generated, or some infractions are formed in the viscera.

Now let us take a cursory view of diseases in general, not in any particular or distinct order, but just as they shall occur; and see whether we may not be able to reduce them to a few simple causes, to wit, imperfect chylification, obstruction, infection, and irregular perspiration.

AN ATROPHY, when it is a disease of itself, arises from a great weakness of digestion, or from a too free perspiration through the skin. Sometimes it is the symptom of a consumption, diabetes, scurvy, or abscess in the bowels. There is another kind of atrophy to which infants

fant and children are mostly subject, which arises from an infraction of the mouths of the lacteal vessels by a viscid matter, and from an obstruction of the glands of the mesentery.

CONSUMPTION happens when the body ceases to be nourished, which arises either from a defect or depraved state of the nutritive matter, a fault in the vessels that are to receive the nourishment, or a want of power in them properly to apply it where it is wanted. This depraved disposition may happen either from the quality of the aliment, its quantity, or from the fault of the vessels to change it, or when changed, to carry it through the proper secretions. The food we eat may be too hard for the stomach to digest, or too large in quantity. When the stomach, from being overcharged, becomes so relaxed as not to be able to reduce our food to good chyle, then crudities are formed in the primæ viæ, the body is filled with morbid humours, and obstructions are formed.

formed. Accordingly we find in consumptions the solids are relaxed, chylickation is injured, the blood becomes ferous, pale, and acrid, the glands of the mesentery obstructed, and at length those of the lungs are infected with the common tent, and these glands infect others, and arrive at a state of suppuration by slow degrees and not by so sudden a progress as is in general supposed. The glands are diseased or obstructed by some fluxion coming faster upon them than they can transmit through their tubes. Hence the glands swell, the coats are distended and yield by degrees to the growing tumour, till the small vessels burst and pus is performed. The symptomatic cough arises from the sharp acrid state of the juices and from the struggles of nature to burst the morbid glands, and thereby to expel the hidden cause of the tumour. A consumption is reckoned mortal by common consent, especially in an advanced state of it, when the glands of the mesentery, lungs, or other

other internal parts are filled and vitiated by the retention of pus or purulent matter. This being the case, I hope it will be very acceptable, if by the assistance of a certain medicine I can remove a disease so very terrible and fatal that the cure has hitherto been attempted in vain, and the joint testimony of all physicians in general declare the case incurable by all the power of physic. Such a medicine I declare myself possessed of, which has been administered in consumptions, asthmas, fevers, both putrid, malignant, and inflammatory, palsies and kings-evil; and never failed in any one case where it was administered; and I am ready to give proof of its success in any one of these cases to the college of physicians, the royal society, or any other learned committee. It is expensive in its preparation and tedious, for two months are necessary to carry it through its last process. Though it is a grand restorative, and the most powerful deobstruent that ever was given in physic, as we shall

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afterwards more fully explain; yet it is most safe in its operation, and cannot in the smallest degree injure the constitution. And so certain am I of its safety and power of removing these complaints, that I here pledge myself it shall do no hurt, and if it does not succeed, I shall neither wish, expect, or desire a shilling for it. If the reader will attend to what I have already said of the cause of diseases, and from what simple beginnings they arise, that all diseases have one common origin, to wit, obstruction, he will cease to wonder when he finds that I propose one and the same medicine to cure several diseases, commonly supposed to be very different. But when we examine them, what material difference do we observe? This is the only way I can think of accounting for it, and however much I may be mistaken, the fact is true. We now proceed in our examination of the cause of diseases.

AGUES

AGUES do not so much arise from the extreme weakness of the solids, as to large obstructions seated in the omentum, pancreas or mesentery, and other viscera, which are overloaded with a tenacious or purulent viscid matter, of a blackish cast, which is often pumped up by vomits. If the obstructions are not removed and the matter discharged before the bark is administered, a hectic fever will be the consequence, and a dropsy, very often, is the final period. The matter that occasions the obstruction, which, I have laid down as the fundamental cause of all diseases, is occasioned by relaxation from woody, damp, marshy ground, moist air, &c. This matter does not begin to send forth its vapours or acrimony into the blood, in order to cause a fever, till it has got together a certain quantity in the obstructed vessels; then its stimulus becomes so strong that the fibres throw themselves into a mechanical effort to disengage themselves of the noxious matter. This acrid matter irri-

tates and stimulates the nerves in proportion to its quantity and quality, which varies as this or that vessel is obstructed ; which variation, occasions that difference we perceive in the time of the return of the fits. The fits must necessarily return till the obstruction is broke through either by nature or art. In a tertian ague, the vessels, wherein the obstruction happens, do acquire, in two days, a sufficient repletion of matter, joined to the obstructed humours not yet resolved, as to occasion a return of the fit every second day. But because in a quartan the humours are more tenacious, heavy, and slow in their circulation, consequently the fits are more distant from each other ; and so of the rest. We see in the small-pox there is a certain time that the varicellous matter takes to ripen and become fit to infect another with the small-pox. In the cure of an ague we must clear the *primæ viæ*, open the obstructions, and expel the morbid matter, and lastly, brace up the over relaxed tone of the vessels.

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MOST ASTHMAS proceed from the weakness of the lungs, a relaxed state of the membranous parts of the diaphragm and mediastinum, from either an impaired force or impeded action in the abdominal muscles serving to respiration, from a visciduity in the juices or from a spasmodic affection of the nerves. Here relief and a perfect cure is obtained, by the use of the medicine already mentioned. The pectoral oxymel of Edinburgh, with emetic tartar, or the following medicine is of great use.

R. Pulv. senekæ ℥℥.

Polycyrrhiz. ℥i.

Aq. fontan. ℔i℥. coque ad ℔i.

Colaturæ adde Oxymel. scillitic. ℥iij.

Syr. balsam. ℥iij. M. dos. cochl. iij.

quarta quaque hora.

SCHIRROUS tumours arise from a viscid glewy matter obstructing the vessels, which adhere, and by the pulsation and pressure of the neighbouring parts, form

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a hard indurated substance, which cannot be opened by any power of the arteries. But as the obstructed matter is of a viscid nature, with little or no admixture of acrimony, it may remain in the body indolent and inoffensive, except the fluids are preternaturally moved and irritated. If the matter is much compacted and the continuity of the vessels destroyed, then a resolution is not to be expected by any application, and the tumor must be removed by the surgeon's hand.

A CANCER differs in nothing from a schirrous tumour, but that in the first there is no acrimony to burst the vessels, in the latter, there is a corrosive humour which bursts the vessels, and from their rupture comes a discharge of ichor, which remaining some time out of the laws of circulation, acquires a great acrimony; and the contagion of this acrimony is communicated from gland to gland, till by degrees the whole system of the glands
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is seized with a cancer ; and in time the acrimony becomes so virulent that it partakes of the nature of arsenic, and corrupts the whole juices.

A DROPSY is produced from obstruction. If the vessels and viscera are by any means weakened, their action upon the contained fluids will be in proportion lessened, and in proportion as it is lessened the fluids will lose in their motion, particularly those which are contained in the veins and lymphatic vessels, not only upon account of their great distance from the heart, but because they are driven back thither, partly by the same force and motion that was communicated to them by the arteries. Hence it is that the veins in most places lie contiguous to the arteries, that the latter when full and in their diastole, may press upon the veins, and assist the motion of their contents. For the veins have neither systole nor diastole, that is, beat not. I said before that the venal hu-

mours were driven back to the heart, partly by the same motion given by the arteries; for the muscles when in action swell and press upon the veins and greatly aid that motion, and forward the return of their contained fluids. But if the vessels are debilitated, if the action of the heart and arteries is abated, if the muscular force grows languid, those aids become wanting, and the blood which is thrown into the veins by the contractions of the arteries, cannot be taken up. For the great ones slowly and with difficulty empty themselves, and the small lymphatics finding these almost full, cannot pour in all the contents they receive from their respective arteries; hence growing turgid they break, or their mouths become so dilated, that they suffer the serum or watery part of the blood to escape into the adipose cells or fat, which lies between the skin and the flesh, and thus constitutes that species of dropsy we call anasarca, in which the legs and feet first grow oedematous, receive and retain
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the impreſſion of the finger, pit and ſwell particularly after ſtanding long, or ſuffering them to hang in a pendular poſture. For the humours, when out of their proper channels, cannot aſcend contrary to the laws of gravity. If the impediment to the circulation of the lymph be either in the lymphatics of the tranſverſal muſcles of the abdomen or peritoneum, the water eſcapes either into its duplicature or betwixt the abdominal muſcles and peritoneum; or if the viſcera of the lower belly is obſtructed, the water falls into the cavity of the abdomen, and thus conſtitutes a different ſpecies of dropſy called aſcites. The ſame may be ſaid of the breaſt, head, ſcrotum, &c. and according to the different parts wherein the water is lodged, it has a particular name. If the exhaling arteries of any cavity throw up too much, or if the abſorbent power of the veins be weakened, or if both theſe happen together, a watery fluid will be collected in the body. And in this way are produced

duced all the different species of dropfies, as the anafarcous or leucophlegmatic, oedematous, and other dropfical fwellings, the afcites, tympany, hydrocele, hydrops pectoris, bronchocele, hydatides, dropfy of the ovaria, &c. When the blood is watery and the veffels weak, then anafarcous, oedematous, and other dropfical fwellings are common. For as the bibulous veins can only take up fluids in proportion to the depilation they fuffer by means of their own vibratory contractions and alternate compreffion of the neighbouring arteries and mufcles, their abforbing power muft neceffarily be leffened in a lax ftate of the fibres, where thofe caufes are much weakened. A dropfy muft have for its caufe a defect of the vital ftrength to carry on the circulation, an obftruction of the veffels from compreffion or rupture, or too great tenacity or poverty of the fluids. Therefore, before a cure of the dropfy is attempted, diligent fearch ought to be made to find out the caufe of

of it. The general curative indications are to procure a free circulation by evacuating the serum, whether stagnant or extravasated in the cavities of the body, and by opening the obstructions of the viscera, and lastly by corroborating and strengthening the solids and promoting a free perspiration. These indications are effectually pursued by the use of the following medicines.

R. Tart. emetic. grviiij ad x.

Oxymel. scillitic ʒij.

Aq. alexeter. ʒij. M. f. haustus primo mane, & hora som. cap. sequentem bolum.

R. Calomel. grxv.

N. Moschat. ʒi.

Theriac. androm. ʒiʒ. M. f. bolus, et primo mane cap. sequentem haustum purgantem.

R. Infus. senæ, ʒiʒ.

Sal. cathartic. G. ʒi.

— diuretic. ʒi.

Confect. cardiac. ʒiʒ.

Tart. emetic. grij. M.

Infus. senæ. ℥vi.
 Mann. opt. ℥i℔.
 Tinct. jalap. ℥iij.
 Tart. emetic. ʒ℔.
 Confect. cardiac. ℥i. M. dof. cochl. iij.
 primo mane singulis diebus.

LARGE doses of the powder of jalap with nutmeg are of great use. Squills too is a very good medicine in dropical cases. When the watery humour is partly evacuated by the continued use of the above medicines, the deobstruent powder already mentioned should be given, which search the whole body, wash and cleanse the mouths of the lymphatic vessels, purge the mesenteric glands, and open the most minute obstructions, by which means a sweet and healthy chyle will be transmitted to the blood in due quantity, and the heat and thirst will go off. To speak my sentiments with the greatest sincerity, I believe there is not in the whole materia medica, a medicine at all to be compared with it in effectually and safely opening obstructions,

tions, dissolving external tumours of the glands, and dispersing internal ones; and in short, in relieving, clearing, and unloading the whole system by carrying off the morbid matter by whatever outlets nature seems to direct. And though it is not a bracer, yet, by the judicious use of it, the tone of the parts is restored, and the whole animal frame receives strength and vigour, and by the use of the bark for some little time, a complete cure, in most cases, is obtained.

IN ALL inflammatory diseases, as *fevers, coughs, pleurishes, rheumatic pains, inflammations of the stomach, peripneumony, &c.* obstructed perspiration is always the cause or consequence of a fever. The primary cause may be irregularities in eating or drinking, unwholesome food, putrid damps, hot air, excessive heat or cold, which constricts and obstructs the capillary vessels. If the constriction is greatest in the lungs, then the inflammation seizes them, and a peripneumony comes;

comes on; if in the pleura a pleurisy; if in the brain and its membranes, a phrenzy, &c. So that the inflammation receives its name from the part affected. Obstructed perspiration attends all fevers, and seeing the perspirable matter is the most corrupted particles of the body, we must necessarily believe that when they are retained in the body, at a time when, from a great degree of heat, the humours are most disposed to putrefaction, they greatly promote it, and the putrid matter must act as a very strong septic upon the humours too much disposed to receive infection; and as the fomes morbi is very powerful, so the effects are in the same proportion. And when the solids are strong and tense, the disease is of the ardent kind. In all diseases of this species, the primæ viæ should first be cleansed, the force of the blood diminished, cooling antiphlogistic medicines, as the saline draughts, mixed at the bed-side and taken during the fermentation, decoctions of seneka and speedwell with nitre, ought to be administered,

nistered, and a gentle diaphoresis should be promoted; and to do this, I can aver, nothing will answer so effectually as the powder I have already mentioned. In inflammations of the intestines or liver, I have never yet failed of success, even when a mortification of the bowels has been supposed to be at hand. Indeed inflammations of all the parts of the body are cured after the same manner, only regard should be had to the structure, situation, and connection of the parts affected, to the antecedent cause of the disorder, and to the age and constitution of the patient. The indication of cure directs the use of all means that tend to lessen the erethism of the vessels, to retard the accelerated motion of the blood, to blunt the sensibility of the nerves, to diminish the power of the stimulus, to lessen the heat of the body, and to promote a gentle perspiration. We call some fevers nervous, some bilious or putrid, others malignant, some intermittent, others remittent; and we have
a great

a great variety of eruptive fevers: but, in fact, the difference arises from the habit of body prior to the attack of the fever, and to the quantity and quality of offending matter. For example, we call one a bilious fever, where there is a great redundancy or irregular secretion of the bile; yet whatever is the immediate cause of the fever, it may be kept up and the symptoms aggravated by an increased secretion and putrefaction of the bile. In general, in all fevers, the bile supports or increases it. A decoction of dandelion with sal diureticus and emetic tartar, plentifully carries off bile, and opens bilious obstructions: When there is no visible tendency to putrefaction, the following bolus is of great service;

R. Calomel. grxv.

Milliped. ppt. ℥i.

Gum. ammon. ℥i.

Camphor. grv.

Syr. croci q. s. f. bolus cum decoct.
taraxaci.

CASTILE

Castile soap with five grains of James's powder, and Castile soap with nitre, are often found of great use in bilious complaints. Where the liver is obstructed, and the patient has a dry husky cough, which is often mistaken for hectic or consumptive, the foregoing bolus will do great service. As I have already mentioned how obstructions are formed in the liver, in my description of that vessel, I refer the reader to that place for an account of the jaundice. If the fibres are tense, the fever is of the inflammatory kind; if they are lax, the fever has putrid symptoms. The intermittent and remittent fevers differ only in degree, and both the intermittent, remittent, and bilious fevers, when at the worst, may be considered as a species of the malignant or pestilential, since they have been seen with all the violent symptoms peculiar to that class of diseases. They all arise from obstruction, putrid damps, contagious and infectious air, and obstructed perspiration. If the pa-

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roxyism,

roxyſm, which is only an effort of nature to free itſelf of its load, terminates in a profuſe ſweat, the blood and juices are thereby freed from the more corrupted particles, and the perſon recovers; but if the ſweat is imperfect, then the viſ vitæ is either weaker, or the offending matter is in a large quantity, which not being entirely thrown out by the ſkin, is re-abſorbed and acts as a new ferment upon the blood, and brings on another fit.

IN low fevers, when the ſymptoms are not inflammatory, but the humours in a putreſcent ſtate and the ſolids much relaxed, which are the fevers moſt common in this country, the principal indications are to clear the primæ viæ, for the fæces are by no means to be ſuffered to remain long in the body, the obſtructions are to be opened, the more corrupted fluids are to be corrected and expelled by perſpiration, and the ſolids ought then to be braced up. To do this, ſmall doſes
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of emetic tartar may be given and frequently repeated, 'till it affects the bowels, then add a little rhubarb to it; when that is worked off, large doses of emetic tartar should be given 'till the patient vomits plentifully; if it operates at the same time downward, the fever will soon disappear. When the patient has puked plentifully, large doses of the bark should be given, whether the fever intermits, remits, or continues. If the patient has been for some time ill, and the fever has been of some continuance, then James's powder may be given; if it has no effect, and the fever does not soon give way, the bark should be poured down plentifully. This will appear very extraordinary practice to some to be so forward with the use of the bark, but whoever tries it will find it answer; and were it necessary I could give, what appeared to me, very good reasons to justify it. Since I came to the knowledge of the powder already mentioned, I have always ad-

administered it with the greatest success, and with the use of the cold bath, which I constantly recommended after the use of it, have never failed to restore the patient without the assistance of any other medicine.

No infectious fever makes an attack upon any person without occasioning a sickness of the stomach and vomiting, as a great deal of the morbid effluvia is swallowed with the saliva. Therefore we ought to co-operate with nature, the best and most infallible physician, in promoting vomiting, by which any bilious, acrid, or putrid collicies that may lie in the stomach, is carried off, which otherwise, by growing more and more corrupt, would produce a variety of bad symptoms, and greatly increase the original disease. And most certainly, if we studied nature and pursued what she indicates, we should find ourselves much happier in cures than we often are. It is also necessary to evacu-

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ate the acrid bile, which unquestionably is predominant in all putrid, malignant, and petechial fevers, and if not evacuated, it becomes more and more corrupt. The next care is to keep up a gentle but regular diaphoresis, for that seems to be the constant and grand effort which nature attempts, and only makes use of vomit and stool when that fails.

THE SMALL-POX is an infectious putrid fever occasioned by a variolous matter acting as a septic upon the animal fluids, and may be treated exactly as other putrid fevers are. As heat is a great promoter of putrefaction, so the patient in all these diseases ought to be kept cool.

THE CHOLERA MORBUS and DYSENTERY commonly appear at the time that putrid and malignant fevers rage, and seem to be a particular determination of the corrupted humours to the intestines. If the primæ viæ give way, then a flux

comes on, but if the corrupted humours are retained and carried into the habit, they occasion an intermitting, remitting, continued, putrid, or malignant fever. It is one and the same disease with only this difference, in the dysentery the bowels are lax, in putrid, &c. fevers they are tense. Dysenteries are of divers kinds according to the diversity of the excrements, some bilious, some serous, pituitous, purulent, &c. And as the intestines are the first part of the human body that becomes putrid, owing to the obstructed fæces, and putrid air contained in the primæ viæ, both which forward putrification, and being naturally more lax than the other solids, great care must be taken to evacuate the morbid matter as soon as possible. Therefore ipecacoanha in small doses, as a scruple divided into four parts, should be given every two hours; then a bolus of toasted rhubarb and nutmeg made up with Venice treacle, and the ipecacoanha repeated. As much fixed air should be thrown

thrown up the intestines as possible, and the patient should drink cold water impregnated with the same. Some give vitrum antimonii ceratum, but the roughness and uncertain operation of that medicine has prevented its coming into general use. If the complaint does not give way to these medicines, then the bark should be immediately administered.

RHEUMATIC PAINS are produced from obstruction, irregular perspiration, and viscosity in the juices. When there is a sizziness, lensor, or viscosity in the serum of the blood, then pains and aches will be felt in the aponeurotic and membranous parts, ligaments of the joints and tendons. This is called rheumatism, and is more or less violent according to the degree of fever attending it. This complaint is with certainty removed by promoting; by the following bolus, a free perspiration, which is often obtained.

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R. Calomel. gr̄ij ad iijj.

Pulv. Jacobin. gr̄v ad viij.

Camphor. gr̄xv.

Theriac. androm. q. s. f. Bolus.

Drinking a warm decoction of seneka with garlick, and sweetened with honey, Sometimes blisters are necessary. If these fail, I have constant recourse to the diaphoretic powder.

GRAVEL arises from various causes, particularly relaxation. When the elasticity of the vessels are lost, they have not a sufficient force to propel the urine into the bladder, and a precipitation ensues in the kidneys, urinary passages, or bladder. The best medicine in this case seems to be a lixivium strong enough, and properly diluted with a large quantity of a thin soft liquor, as chicken broth, &c.

IN NERVOUS DISEASES the blood is not so sweet and balsamic as in a state of health, the texture of the body is loose, the vessels lax, the circulation languid, diges-

digestion imperfect, and perspiration obstructed. This relaxation is often brought on by moisture, and the matter which weakens the spring of the fibres, and relaxes the nervous sponseretic parts of the human machine, is most commonly the humidity of some stagnated fluid. Some people are born with weak and sensible nerves; others fall into nervous diseases by intemperance in eating and drinking, by too frequent evacuations; fear, immoderate floodings, from other diseases imperfectly cured, much study, &c. To enumerate all the symptoms attending nervous diseases, would prove a very tedious work. In short, it is a chaos of afflictions. I must refer the reader to a book intitled *A Dissertation upon the Nerves*, for an account of the symptoms and causes of nervous diseases, where he will find them fully enumerated; but the method of cure stands in need of some emendation. Here it is necessary to proceed with the greatest gentleness and care, as the obstructed organs can-

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not bear any violent shock from the operation of medicine. And as these diseases are so interwoven with the animal frame, that they become in a manner constitutional, and as it were part of it, how difficult then must it be to dislodge an enemy so deeply intrenched? What time will there not be required to follow it through all its minute passages and lurking holes, and then to discharge it out of the body? Such medicine as has power to pervade the whole nervous system, open the most minute obstructions, remove every spasmodic affection, and restore to every fibrilla the proper and natural undulations, will certainly perform a cure in the most confirmed nervous complaints. The medicine which I have more than once mentioned, will be found, I believe, to possess those virtues so as to be able to remove, not only nervous diseases in their first, but even in their last stages, when they are much confirmed upon the constitution, as in epilepsies, palsies, hypochondriacal melancholy,

lancholy, and some other specieses of madness.

IN EPILEPSIES the whole, or greatest part, of the vascular system is choaked or clogged with the morbid matter, therefore remedies are required to penetrate the very inmost recesses of the human body. Here we must again apply to the powder.

HYSTERIC PASSION is of the spasmodic kind, and is owing to a great constitutional degree of sensibility in the solids, which are easily irritated by the application of a stimulus, to a lentor in the fluids and relaxation of the solids, to passions of the mind, or suppression of some natural evacuation. If the lentor and redundancy is more particularly lodged upon the gullet, stomach, liver, intestines, spleen, pancreas, mesentery, uterus, or their glands, those organs are primarily affected, and draw in the rest of the body by consent. If the fomes morbi

is flung upon the stomach, there the symptoms first appear ; if upon the uterus or its secretory or excretory vessels, there the tragedy begins : if upon the spleen, it is then particularly violent, that vessel swells and fills with wind, which, as the person gets better, seems to disperse. And as the spleen is probably designed to thin the fluids, and to protrude them into the splenic vein, or prepare them in its own cells, for the office of the liver and secretion of the bile, if they stagnate there, they distend that vessel and produce various symptoms, and the blood not being sufficiently purified, becomes heavy, and neither fit for circulation or secretion. The paroxysm or fit, is an effort of nature to attenuate the humours, dissolve the obstructions, open a free circulation through the canals, and to throw off what oppresses her. To accomplish that end, she exerts all her powers. The animal spirits are put into violent motion, and they rush in greater plenty where the stimulus is excited, which by that means

means becomes greater; hence some parts of the body are deprived of their usual supply, while those parts, where the influx is greatest, are thereby violently contracted and convulsed.

A Palsy arises from an obstruction of the nervous fluid. This does not seem to bear a doubt, when we consider how violently all the maimed members are affected, how all sensation, motion, and use are lost in them, yet the blood freely circulates. Were the obstructions, which produce this effect, seated in the large blood vessels, and not in those which the nervous fluid passes, we should certainly find some traces of it, and perceive, if not a total obstruction, at least a very gross and visible interruption in the circulation of the blood. Here the medicine that has any chance to be of service must be very subtle, penetrating, and powerful. Such is the medicine that I have already mentioned. The component parts of it are so intimately

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mixed,

mixed, and so judiciously blended, that the whole constitutes a most benign medicine, which from the fineness and subtilty of its parts is so pervading, that the obstruction must be very great indeed that resists its power.

HYPOCHONDRIACAL MELANCHOLY has its principal seat in the liver and other viscera of the lower belly. The effects this disorder produces in the human body are terrible, as palpitations in the heart, vomiting, fainting, convulsions, inflammations, and tension of the hypochondria, with a train of many other afflictions. These various phenomena appear, just as the superfluous matter or fomes morbi happens to be flung on this or that vessel, which pressing upon the nerves and contaminating the fluids, interrupts the free and equal circulation of the animal spirits, and thereby excites various passions of the mind, very different according to the nature of their interruption, or

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irregular

irregular influx and reflux; such as fear, anger, low spiritedness, great anxiety, &c. which occasions innumerable suicides. This is a most stubborn disease, and will yield to nothing if the deobstruent powder fails.

THE SCURVY may very properly be deemed an attempt or effort of nature to relieve herself of what oppresses her. For as the plenitude or load which oppresses her proceeds primarily from errors in diet, which brings on a defect in the secretions, especially that of perspiration; and as this defect in the secretions proceeds from an inability in the solids, to carry the juices with sufficient force into the mouths of the excretory ducts, or to divide and fit the matter for secretion, so that the ducts through which the juices circulate, and to which they communicate their qualities and effects, become overloaded and obstructed by a gelatinous or slimy matter, which ought to be discharged by the pores of the skin; so whenever the constitution by any means

means becomes invigorated, a proportional quantity is thrown into the perspiratory outlets; yet either not being conveyed with sufficient force, or being too viscid to pass, it there sticks, heats, becomes acrimonious, and causes those eruptions and defecations of the skin, which in some people are almost loathsome to behold, and extremely offensive to come nigh. Many disagreeable symptoms does the patient bear before nature exerts herself to make those outlets to carry off the superfluities. When this disease attacks phlegmatic constitutions, it is called the cold scurvy; when it invades the bilious or those of a hot temperament, it is called the hot scurvy. I call nothing scurvy, but what is attended with defecations of the skin without any acute fever, and where are small ulcers in the gums, that cause loose teeth, foetid breath, and ooze out a stinking slimy matter. Ulcers on the legs or any other part of the body proceed sometimes from the relicks of other distempers, as well as from the scurvy. Sometimes the skin

is as hard as parchment, and of a branny and scalely white, which will crumble into dust like chalk between your fingers; and though it breaks out in few parts of the body, yet we may depend upon it that all the perspiratory ducts are in some measure obstructed by the same farinaceous matter, and the juices towards the surface of the body are replete with this chalky substance. Those that are afflicted with this scurvy generally have the gout, or the seeds of it in their constitution. I had a patient whose whole body was covered with this chalky crust, two tenths of an inch thick, and as hard as wood; when it began to come off, he took it out of the bed in handfuls three or four at a time. Some of the scales were the breadth of one's hand. The patient's skin came on like that of a new born child. All scurvies, as I said before, have their beginning from obstructions, which occasion putrefaction. For though the food from the time it is received into the mouth, till it is discharged

charged by perspiration and excreted by the anus, is advancing from an ascescent state to a state of putrefaction, yet it is prevented from arriving at the state in which we see putrid flesh or a stinking fluid, by throwing in upon the humours a fresh supply, formed from aliment of an ascescent kind. Yet if this supply is partly cut off by the aliment being imperfectly digested, or if the perspiration is obstructed and the emunctories prevented from doing their office, then putrid and detached matter is shut up in the body and prevented from flying off; then the humours soon turn into a putrescent state which destroys the health, then this morbid matter is soon conveyed into the blood, it intimately mixes with it by circulation, then it acts as a septic ferment, and corrupts the whole mass of fluids, and after some time we may consider the whole body as in an advanced state of putrefaction; then come on great languor and lassitude, wandering pains and aches, a sense of weakness, and smarting

ing violet coloured, livid, black and blue spots or vibices over the body, the humours are daily more and more corrupted, till at last they become so acrimonious as to corrode, tear, and destroy the vessels, and occasion hæmorrhages, the breath stinks, the countenance becomes pale and tawny, the gums are corroded and turn spongy, breathing is difficult upon the least motion, the legs swell, and the swelling suddenly disappears, but they continue unwieldy and heavy, wandering pains all over the body, as well internally as externally, imitating almost every complaint. The teeth grow loose, yellow, black, and rotten; hard knots are felt within the skin in different parts of the body, obstinate stinking ulcers chiefly in the legs, scales, crusts, a dry leprosy, violent gnawing, stabbing, piercing pains all over the limbs, joints, bones, and bowels, which greatly increase at night, heats, feverishness, looseness, strangueries, bloody fluxes, faintings, anguishes,

dropfies, consumptions, convulfions, tremblings, gangrene, voiding of blood by stool, putrefaction of the liver, spleen, pancreas, mefentery, &c. are fymptoms of the fcurvy. This putrid difeafe, which is either fcorbutic, fcrophulous, leprous, or evilifh, is cured with more difficulty than other putrid difeafes, becaufe the original frame of the conftitution is continually promoting the difeafe, and is constantly throwing in frefh matter to fupply it. But as it arifes from obftruction and obftructed perfpiration, the moft rational cure is to open the obftructions, and promote a full, regular, and free perfpiration.

THE KINGS-EVIL proceeds from a fizy cold matter obftructing the glands and rendering them almoft of a fchirrous hardnefs; they are often inflamed and turn to ulcers, which feems to arife from the obftruction of the excretory tubes of the glands, by the matter to be fecreted becoming

becoming too thick. The inflammation is excited in the vessels that nourish the glands, which are so small, that they are unable to excite heat sufficient to digest and turn into pus the thick humour which obstructs and greatly increases the volume of the gland, insomuch, that nature wants the assistance of art to attenuate sufficiently these gross humours. Relaxation seems to be more the cause of this complaint than any certain infection or hereditary taint, though it is no doubt a disease that may come by inheritance. The loose and weak texture of the glands suffer their cavities to be distended beyond their natural capacity, in consequence of which they burst, and the redundant humours, by means of that rupture, find a vent. For when there is a redundance of any thing in the body, which hath been a long time discharged by this or that passage, by the aid of some secretion, which by custom is made as it were a law; then it is evident, that there is necessarily a disease of the secretions

of the other glands, which threaten some danger to those parts. For example, in leprosy both dry and moist, the patient, while the disease is thrown out by the skin, has a less discharge by urine, and all the other secretions are less in quantity. Now whatever medicine can be found of such a deobstruent quality as to open the excretory ducts, absorb the acrimony, and clear the skin, by attenuating the matter which caused the disorder, will cure this tribe of diseases; will heal up the large tetters which often discharge great quantities of ichor, which are deemed scorbutic, scrophulous, or evilish; but in reality, they are no other than long augmented and united obstructions, proceeding from a plethoric serous diathesis. In these complaints there is no medicine to be compared to the powder I have already recommended; but whether it will perform a cure in all possible cases, my time and experience have not yet enabled me to determine; but thus much I can declare, that it has never yet been

been given, where it failed to recover the patient, and time will shew whether it is to be relied upon as an absolutely certain medicine in the cure of those complaints. After the use of it the lax solids should be braced up with the bark and sea bathing, to prevent a return.

RICKETS arise from errors in diet, from the over care and tenderness of the parents, from neglecting to give the child proper exercise, or from the omission of timely remedies, when the bodies of little infants, who are subject to various obstructions, are out of order. This complaint is to be prevented or removed by cleansing the primæ viæ, opening their little obstructions, and by bracing up the solids by the use of the cold bath, country air, and much exercise, not suffering the children to sit long, but often rolling, tumbling, and shaking them.

VARIOUS are the disorders which are incident in particular to the fair sex, and

most of them arise from an undue regulation of their monthly courses. That is the principal source of most of their calamities. When the monthly purgations are partially suppressed or totally obstructed, through weakness, rigidity, or a spasmodic contraction of the vessels, if the humour retained is not thrown off by some other outlet, it must necessarily occasion a plenitude, which must distend the vessels beyond their natural dimensions, and cause debility; as the urine, if it is too long and in too great a quantity retained in the bladder, stretches its fibres so far that they lose their power to contract and expel it.

A PERIODICAL plethora is not peculiar to women only, for Boerhaave was of opinion that men have some excretion increased at stated times, and that the plethora they are subject to, goes off either by increased perspiration, urine, &c. which sometimes happens to women whose courses do not flow, yet they are preserved

preserved in health by some other evacuation being increased.

THERE is a certain periodical plentitude in all nature. The sea ebbs and flows; the sex are relieved by the eruption of the menses; humours increase and grow plentiful in the beginning of every month; in lunacy these periodical changes are very perceptible; they happen indeed in all diseases, and very much exaggerate the symptoms, but not being perceptible, were not attended to by physicians, who are generally fonder of spinning out fine theories, than of studying simple nature. Some people are subject to periodical eruptions, which cover all the body, and are at other times perfectly free from any thing of the sort. Most sores and runnings have a greater discharge at one time than another.

WHEN the periodical plethora, which women, in common with every other part of the animate and inanimate creation,

tion, are subject to, is not discharged by the common outlets nature has appointed, and no other evacuation has supplied its place, then the blood being obstructed, and not having its due motion through the canals, obstructions are of consequence generated, and the blood flowing to those obstructed parts in a still greater quantity, and finding no passage, of course diverts and makes its way through other parts, where it has either been accustomed to find vent or meets with the least resistance, and thereby lays a foundation for innumerable disorders, such as fevers, inflammations, cholics, excruciating head-achs, dimness of sight, swimmings, hysterics, inflammation of the stomach and bowels, distention of the hypochondria, defecations of the skin, eruptions, flushing redness of the face, chlorosis or green sickness, a heaviness, sense of weight, pain of the loins, groin, paleness, deprivation of almost all the natural, vital, and animal functions, twitching pains, a pain throbbing and beating

beating in the head, giddiness, reaching, panting and difficult breathing, convulsions, a species of madness called furor uteri. Sometimes the blood, by its putrefaction, injures the vessels and produces an infinite number of diseases. If the blood has continued so long viscid and obstructed as to contract an acrimony, then the acrid concretions twitch, stimulate, and wound the nerves of the womb, and put them into those throws, spasms, and convulsions, which affect the whole body, and are often the cause of nervous fits. The blood thus accumulated, is sometimes discharged by uncommon passages, as by the nostrils, nails, gums, salival ducts, oesophagus, breast, lungs, skin; also by stool, urine, wounds or ulcers. In the cure of this disorder it is necessary to administer a medicine powerful and active enough to reach the extremities of the blood vessels; dissolve viscidities, thin the stagnating humours and render them fit for motion, force open the obstructions of the viscera,

cera, correct what degree of acrimony the juices may have contracted, and restore a free circulation. If the following medicines fail of having the desired effect, I would then recommend the use of the deobstruent and restorative powder, which is certainly the most powerful, and at the same time the safest medicine that ever was known or administered in physic; and whenever it is known, which must one time or other happen, every physician will allow that it is made up of the most active and powerful materials, from some of which much may be expected, even as much as it really performs, and that is more than any thing yet known in physic is capable to effect; and its operation is at the same time so gentle and easy, that it is seldom discovered till next day, and upon that account it is given only every fourth day. In palsies the patient generally finds a tingling like the pain which people feel when their hand or leg is asleep, the second day after taking it.

In

In putrid fevers its effects are generally very quickly perceived.

IN menstrual obstructions give the following bolus, which should be repeated twice a week till the patient is well ; if it operates both upwards and downwards, so much the better.

R. Calomel. grviiij ad grxv.

Pulv. hellebor. nig.

Myrrh. ā ʒi.

Extr. hellebor. nig. q. f. f. bolus inter-
medio tempore cap. æger pil. sequent.

R. Castor. g. x. ammon. myrrh. āā ʒij.

Aloes chalyb. rubig. præp. āā ʒi.

Extr. gentian. Syr. zingib. āā p. æ. M.
f. pil. No. 24. Do. No. 3. bis in die.

Vel,

R. Af. fætîd. spec. aromatic. ā ʒi.

Galban. pulv. hellebor. nig. ā ʒß.

Sal. martis ʒiß.

Tinct. myrrh. q. f. f. pil.

And if a liquid form is required, either of the following will do.

R.

R. Elix. hypochondriac.
 Balf. traumatic. āā ʒiij.
 Sacchar. q. f.
 Sal. succin. ʒi.
 Spir. lavendul. ʒij. M.

R. Regul. martis ʒi.
 Spir. vol. aromatic.
 Essent. ambr. āā ʒvi.
 Mosch. ʒʒ.
 Spir. lavendul. ʒij. M.

THE turn of life to women is a most dangerous time; some lose their lives, others their senses, and many their healths at that time. The following course will be of great service in nervous diseases, headachs, costiveness, female obstructions, but most particularly in the disorders of women about the turn of life.

R. Galb. pur. Af. fætid. Resin. jalap.
 Mercur. dulc. āā ʒʒ.
 Castor. russ. aloes socotorin. ā ʒʒ grv.
 Sal. succin. grvi.
 Ol. anis. gut. iiij.
 Vin. aloetic. q. f. f. pil. No. xij.

R. Succin. flav. opt. pulv. subtil. ℥℥.
Myrrh. contus. ℥ij.
Sal. tart. ℥x.

— ammon. ℥ij.

Mar. syriac. ℥ij.

Spir. vin. rect. ℥ij. Digere per dies
tres, vase bene clauso, distill. ℥iij. cui adde

Cort. Peruvian.

Rad. valerian. sylv. contus. ā ℥ij. in
funde sine calore per dies tres ad singul. ℥i.
adde Vin. alb. Lib. ℥℥.

R. Aq. pulegii simpl. (vel mēth. p iper.) ℥ij.

Syr. e meconio ℥i℥.

Tinct. castor.

Spir. lavendul, c. ā ℥ij. M.

R. Castor. russ. ℥i.

Croci piper. alb.

Pulv. myrrh. comp.

Tart. vitriol. neutr.

Mag. alb. ā ℥i. f. pulv.

R. Emplast. cephalic. pharmacop. Edin. ℥i℥.

Opii pur. ℥℥. M.

R. Mar. syriac. ℥ij.

Hellebor. alb. ℥i.

Fol. nicot. opt. assar. bacc. ℥℥. M.

Four

Four spoonfuls of the above wine going to bed, the like quantity at three or four in the morning, and at four in the afternoon, with two of the opening pills each time; and at night, after taking the pills, take a spoonful or two of the specific mixture, to be repeated twice a week, drinking warm thin broth those days. On the other days take gr^{ss} of the strengthening powder morning, noon, and night, in a spoonful or two of white wine and water, peppermint water, pyrmont water, &c. with a glass of the same after swallowing the powder. The stomach plaster is constantly to be worn at the pit of the stomach, and a pinch of the cephalic snuff is to be taken going to bed. The head too should be washed ever morning with cold water and spirits of lavender.

If the courses are too immoderate, great, or frequent, so as to exhaust the strength, it causes a great debility, loss of appetite, indigestion, grumbling in the
the

the bowels, pain and weakness in the back, loins, hips, dropfy, atrophy, or fluor albus, which is too great a discharge of mucus from the inside membrane of the uterus, designed to lubricate its cavity and neck, and prevent their coalescing. It may be occasioned by plentiful eating, without taking exercise. If it is of long continuance, and the juices very acrid, then it becomes cancerous. The immediate seat of this disorder is either in the canals of the uterus or in the glands inserted in the vagina: when there is any considerable degree of acrimony in the discharge, it occasions heat, pain, excoriation of the cuticle and an ulcerated state of the glands, it occasions great weakness in the back, flatulencies, rising of the hypochondria, hysteric passions, &c. This disease may arise by great relaxation of the solids, and an acrimonious state of the fluids, which may be brought on by moist unhealthy air, damp beds, or houses, sudden cold, obstruction of some natural evacuation, sickness, a

bad state of health, the passions of the mind, as fear, love, grief, immoderate venery, difficult and hard labour, floodings, venereal gleans, forcing purgatives too often repeated, scorbutic and venereal taints, and every disease whatever attended with an acrid state of the juices. The medicines proper to be given in this case, must be able to sheath and envelope the acrimony of the juices, scour and deterge the indurated glands, cut through the several obstructions, sling off the peccant matter through some proper emunctory, and restore the secretions perfect and regular. The following medicines cured the most inveterate fluor albus I ever met with, even of twelve years standing, when the patient could not walk, nor almost bear the smell of her own cloaths, which were sometimes wet even to the outer petticoat.

R. Balf. copaib. ʒiʒ vel ʒij.

Vitel. ov. q. s.

Aq. cinnamon. simpl. ʒiʒ.

Tinct. thebaic. gut. xij.

ʒad

Spir.

Spir. lavendul. ʒi.

Syr. simpl. ʒiʒ. M. hora som. fumendus omni nocte.

R. Rad. rhei pulv. gallor. opt. ā ʒi.

Terebinth. q. f. f. pil. No. 36. cap. 3 bis in die in cochl. ij. styptic. Helvetii. Sponge should be used now and then for a pessory.

R. Sal. mart. ʒi. coque ex aq. font. fbi. solut. leni calore et filtra. cap. cochl. min. j. hora prima ante meridian. et 4ta post meridian. in cyath. infus. sequent.

R. Cort. aurant. incis. et contus. ʒiij.

Fol. chamæmel. mj. infunde in aq. bull. fbi.

R. Gum. Arab. pulv. gallor. opt. ā ʒij.

Rhei pulv. ʒij.

Mastich. p. ʒi.

Terebinth. Venet. q. f. f. pil. No. 60. cap. 3 omni nocte.

But first of all the following bolus should be given, and repeated once or twice a week.

R. Mercur. dulc. grviiij.

Rad. rhei pulv. ʒʒ.

Spec. aromatic. grviiij.

Syr. simpl. q. f. f. bolus magis fumendus cum regimine.

R. Mel. ægyptiac. ʒij.

Aq. alumen. Beti ſbi. M. injiciatur ʒi.
hujus ſolutio quotidie.

If the injection occaſion, which it ſometimes does, a pain in the ſide, in that caſe it muſt be diſcontinued. The primæ viæ, in this complaint, as well as in every other, ſhould be kept clean with rhubarb and Æthiop's mineral or mercur. dulc.

I HAVE omitted ſaying any thing of the gout till I ſhould know whether the powder, I have already recommended, will prove an effectual remedy in that torturing complaint. It is the general opinion that flannel and patience are the beſt phyſicians in the gout; and people are unwilling to try any thing eſſe, which is the reaſon I have not had ſufficient opportunities to enable me to declare with certainty that it is a cure for the gout. I have adminiſtered it to ſeveral patients in a fit of the gout, and it ſometimes removed the pain ſuddenly, and in others
every

every dose lessened it, and after repeating it a few times the pain went entirely off. If any person wishes to make trial of it in that complaint, I declare it may be done with the greatest safety, for it may be given to a child upon the breast, and I have several times given to children of two months old. I undertake it shall do no harm, and if it does not cure the patient, shall not expect a shilling either for it or my own attendance, and that agreement I am willing to abide by in every other disease.

FROM what hath been said, it plainly appears that a stimulus is the cause of chylification, circulation, secretion, and excretion, and all natural motion in the body ; and what is the cause of natural motion, if too much increased, will produce unnatural motions ; but in all diseases there is an unnatural motion arising from a preternatural irritation of the nerves, therefore in all diseases the nerves are too much irritated.

AGAIN, from the account I have given of diseases, it evidently appears that they all arise from obstruction; therefore whatever acts as a most powerful deobstruent, must remove many diseases, and do good in all; and if it has at the same time an absorbent quality, so as to sheath and suck up the acrimony of the fluids, it will have wonderful effects. As diseases arise from obstruction, let us now see if we can find out what occasions obstruction, and if we can do that, we shall then arrive at the fountain head, and be better able to prevent and cure diseases.

C H A P. VIII.

The Cause of Diseases more particularly considered and accounted for. How to preserve and restore Health, by a natural and easy Method, and with little Medicine. An Account of a safe and very powerful Medicine, which opens the most minute Obstructions, and effectually cures some of the most stubborn Diseases, as Asthma, Consumption, King's-Evil, Palsy, Fevers of the worst Kind, &c.

THE end and design of eating and drinking is to supply the waste of our bodies, and to keep up the due ballance between the solids and fluids. The necessary friction and collision from the motion of our juices in order to break and subtilize their parts, and to fit them for the animal functions, make a continual waste, to supply which, it is absolutely

lutely necessary to take a proper proportion of nourishment ; but if a person, in order to supply that waste, takes too much food, which from its natural quality, destroys the ballance, then the individual suffers in proportion as the solids and fluids are removed from the standard of health. Crudities and indigestion lay the foundation for most diseases that torture and afflict mankind, and not a few there are that dig their own graves with their teeth. If a person whose solids are tense and firm, wallows in luxury and riot for any considerable time, he fills his blood with bad juices, which being driven about with too great force and velocity, are thereby forced into the small vessels, designed to receive the lymph or thinner part, and the solids being in a due degree of tensify, acute and inflammatory diseases, as fevers, gout, erysipelas, &c. are formed. If the small lymphatics, by the force of the circulation and acrimony of the fluids, are torn and broke, then imposthumes gangrenes, &c.

&c. follow. But if a person pursues this course a little more slowly, and joins laziness and want of exercise to it, so that the acrimony or stock of bad humours increase, and the solids are at the same time weak and relaxed, then the slower nervous and more chronical diseases are produced, and to crown the feast, in comes the apothecary's shop to feed the disease and confirm the evil. When I take a view of the brute creation, I find they are liable to very few diseases: horses indeed, from the brutal treatment of their masters and those that have the care of them, and from violent exercise and unconscionable fatigue, are subject to fall into more diseases than any other species of the brute creation, except the lady's lap-dog from over feeding. In short, the brute creation have rarely any disease, and that is entirely owing to their eating and drinking what nature designed for them, and in such proportion as their hunger and thirst require, and to their having nature for their physician, and not
 being

being poisoned with the apothecary's shop; and I do believe that providence did not entail more diseases upon man than he did upon beasts, and man certainly would have as few, if he could be prevailed upon to follow the same regularity in eating and drinking. Yet I would not be understood to mean that temperance will prevent or remove every complaint, certainly not; as long as there are different constitutions there will be some healthier than others; and one constitution will be more liable to this or that complaint than another. Some diseases are left us by inheritance as a patrimony, and originally acquired by intemperance. Some diseases arise from infection and bad air, which we shall by and by consider more at large; but the bulk of complaints are the fruit of our own labour, and may be accounted for in the following manner. When the meat remains longer in the stomach, by reason of its quantity or quality, than by the laws of nature it ought, or when
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the saliva or gastric humours are already corrupted from the first cause, then the aliment undergoes an irregular and incomplete digestion in the stomach, and by the heat, hurry, and tumult of that organ, wind and crudities are bred, which being inclosed, become putrid, like putrified and stagnant air, but more so as being more confined. And being pressed upon by the nervous fibres of the stomach, endeavour to make their way, where there is least resistance, either by the upper or lower orifice of the stomach, but if they are pent up by the contraction of the fibres, as happens in spasms of the intestinal fibres or first passages, then the putrid myasma and crude indigested chyle endeavour to get loose, and by their pressure upon the neighbouring vessels occasions pain. Spasms upon the sphincter of the oesophagus occasion the appearance of suffocation. In spasmodic cholics the anus is sometimes so contracted as not to admit a small quill. The croaking and murmuring in the
bowels

bowels of nervous people in an hysterical fit, arise from spasms. But they do not continue long in the primæ viæ till they enter the habit and mix with the mass of blood. Hence arise wandering pains not unlike the gout or rheumatism, now in one place, then in another; for as soon as the fibres by their workings, have disengaged themselves of the acrid stimulating matter in one part, perhaps the fibres at a distance contract, and the person discovers pain there; for where the obstruction is greatest, there the pain is most acute, and the influx of the nervous fluid greatest. Sometimes the fibres of the vessels are unable to disengage themselves of the offending matter, then they are more relaxed, by the struggle, the obstruction is more confirmed and increased, and perhaps by disturbing the circulation by the contest, obstructions are formed in other parts of the body. When the acrimony and myasma are forced into the absorbent vessels and mixed with the mass, then diseases appear

pear in various shapes, and as this or that part of the body is weakest, the force of the solids throws the offending matter thither, and forms the seat of the complaint.

SOME of our complaints arise from infectious or bad air, which we shall next consider. Upon the air the life of animals and vegetables and revolution of the heavens depend. The weight of the air differs in different parts of the earth, and at different seasons and times of the year and weather. When it is gross and stagnant with little motion, it becomes putrid and unhealthy, for all bodies detach some particles which circulate in the air, which is more or less healthy according to the qualities and quantity of matter it contains. All the body is vascular, and every part of the skin both expires and inspires the most subtile and perhaps putrid parts, which issue out of the cutaneous exhaling arteries, which are dispersed over all the body both externally
and

and internally. When the vessels are relaxed, then perspiration is obstructed, because the vessels have not force to carry the perspirable matter the length of the cutaneous exhaling arteries; and if the air is stagnant and thick, it has not elasticity to disperse and waft it away, and it lodges upon the skin and about the mouths of the vessels, which it clogs, plasters up and obstructs. This putrid matter, which should be carried off by the wind, is re-absorbed by the inhaling vessels along with putrid particles contained in the air, which acts as a septic matter upon the blood, and excites it to corruption. Perspiration is, as was already mentioned, absolutely necessary to animal and vegetable life, and a free and regular perspiration is necessary to good health, and in all diseases it is more or less obstructed. When the air abounds less with that universal spirit which I spoke of in the beginning of this treatise; the air loses part of its elastic virtue, which makes the quicksilver sink in the
 barometer

barometer upon the approach of bad weather, and is the reason why we find this element heavy, and the less it supports and keeps up our spirits; and if it loses its elastic force without, it loses it also within us, whereby our natural strength is diminished, the circulation is languid, the body heavy and dull, the spirits low and oppressed; the stomach does not quickly do its office; head-achs, peevishness, and a great variety of other gloomy and disagreeable sensations, too well known, particularly to those that labour under nervous diseases. When the air is in a putrid state, it resembles that noxious stinking damp, which sulphur when kindled emits, or like the damp which arises from coal or lead mines, deep sunk wells, &c. Many diseases, as the putrid, malignant, epidemical and pestilential, &c. arise from the air, which is received and sucked up by the inhaling or absorbent veins, which are a species of lymphatics. The imbibition by the skin is performed in the same manner as
other

other absorption, the pulsation of the arteries, which forwards the circulation of the chyle, is continued by the perpetual vibratory oscillations of the external air, and by part of it which enters the absorbents, and acts as a stimulus. When the air is loaded with the effluvia of stagnating water, and rendered more putrid by vegetables or animals dying and rotting in it, at such times all meats are quickly tainted, then low, malignant, putrid, intermittent fevers, dysenteries, with many other putrid diseases rage. For the putrid effluvia of both vegetables and animals, stagnating waters, moist stagnant air and heat much increased, have an assimilating quality, and act as a ferment upon the humours. There is no stronger septic than putrid flesh. If you put a piece of rotten flesh into an exhausted receiver, it will fill it with a great quantity of air, which is the corrupted effluvia turned to a noxious and deadly air, and if transmitted upon any vegetable will kill it, if upon an
animal

animal, it will fall into convulsions, and very probably die. This pestilential air may be condensed and absorbed by another body, which will by that means become the most deadly poison, some of which is now in my possession, though not entirely prepared in that way. It will not only kill by the touch, but if opened and broke, would poison the air around it, and kill whatever comes within its reach.

I HAVE perhaps two of the greatest opposites in nature, a poison brought to the greatest degree of malignity, and a medicine of most extraordinary virtues, capable of working wonderful effects upon the blood and juices, and has not yet failed in any case where it has been administered, which has been mostly where other means have been tried in vain, and in diseases commonly thought incurable, particularly consumptions, kings-evil, asthma, palsies, and the worst kind of putrid fevers: it is such an

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acqui-

acquisition to the art of healing as will be more valued the more it is known.

WHEN the air is foggy and damp and full of putrid particles, it stops the perspiration, and thereby shuts up in the body the putrid perspirable humours; and the cutaneous absorbents suck up a large quantity of the putrid miasma, which is carried into the blood and brings on a fever, which appears differently in different constitutions according to the state of the solids and fluids. If the solids are tense and elastic, and the patient plethoric, then he is seized with an ardent high inflammatory fever, which always changes to a putrid and malignant form, if the person lives long enough and the fever not removed. If the person is bilious with more relaxed solids, then the fever attacks with less violence, but creeps on insensibly. He complains of thirst, nausea, bitter taste of the mouth, frequent discharges of putrid bile; by and by it insensibly changes into a malignant

lignant form, and petechiæ and livid spots, mortification of the bowels, and death ensue. If the air is much infected, or the mouths of the cutaneous vessels much dilated, so as to imbibe a large quantity of putrid matter, then it soon reaches the mass of blood, and the fever is of the worst kind. If the morbid matter is extremely putrid, then the fever puts on the worst form, and is more or less pestilential, and the nerves quickly receiving some of the pestilential matter, convey it to the brain, which brings on giddiness, frenzy, coma, and universal debility and sudden death. The jail fever is the most pestilential this climate is subject to; it arises from bad air, filth and nastiness, which is as great a promoter of putrefaction as cleanliness is a preservative against it. It is the putrid matter, filth, and number of houses, which prevent the free circulation of air, and the perspiration of such crouds of people that make large towns so unhealthy. And filth and nastiness besmear the skin and

clog the exhaling and inhaling vessels. People should avoid, as much as they can, living near much wood or water, for woody countries are always damp, and the people are consequently very subject to agues. For the perspiration of vegetables is so great, there is no wonder the air should be damp and moist ; which ought to serve as a caution to gentlemen in the country not to plant too near their houses, as the humidity of air is greatly increased by the perspiration of the trees, and the imperfect ventilation of the air. From what hath been said we see that the body in a healthy state both expires and inspires, and as long as this expiration and inspiration are regularly kept up, so long the person enjoys health, but when that is interrupted and disordered, he complains. And I challenge any one to produce an instance of a person who regularly inspires and expires, in bad health, or one who is irregular, that enjoys good health. When we consider that perspiration is more in quantity than
all

all the other evacuations put together; it is easy from hence to conceive how absolutely necessary it is for life and health. Obstructed perspiration is the cause of a train of hideous and frightful symptoms that affect nervous people, and is the cause of that transient lowness that people otherwise healthy are forced sometimes to complain of, particularly in gloomy weather. If the obstructed perspirable matter falls mostly upon the lungs, then it produces a nervous asthma; if it tends to the heart, a palpitation; if to the head, tinglings, thumpings, epilepsy, palsy, apoplexy; if upon the stomach, nausea, vomiting, stinking breath; if it enters the coats of the vessels, it causes gout, rheumatism, wandering pains, the solids become more and more relaxed, and the internal perspiration is soon in the same state. The inhaling vessels are clogged and relaxed, which deprives the body of the necessary supplies of fresh air.

If perspiration then is so necessary, any medicine that can procure a free perspiration in every case whatever, must be of very considerable consequence in physic. It is a very difficult thing, nay almost impossible, to procure a free perspiration in some constitutions, and in most, it is very uncertain. Medicines are often given for that purpose, when they have only served to heat the body and make it drier than it was before. Yet the powder which I have so often mentioned, if perspiration is only required, will procure it from the crown of the head to the sole of the foot, without heating the patient or fatiguing him in the least. And every one at all acquainted with physic, must allow it to be a very useful discovery, if it had no other good effects, for by that it will remove many troublesome complaints, as rheumatism, several kinds of fevers, and I have good reason to believe, the gout, &c. And at the same time it will prove a very good

good auxiliary in the cure of most diseases.

SEEING then all diseases arise from indigestion, obstruction, obstructed perspiration and infection; let us now see how they are to be prevented or removed. If plenitude has the greatest share in producing diseases, certainly evacuation must have the greatest share as remedies. *Contraria enim contrariis vincuntur.* As the stomach is nature's store-house, great attention ought to be paid to it; it ought never to be filled too full, nor enjoined more labour than it is able to cope with. To illustrate my meaning by a simile. Let us suppose the stomach a beast of burden; we all know by experience, that no beast can continue always at work, and we likewise know, that we must proportion the load it is to carry to its strength. Just so it is with the stomach, it cannot constantly persist in action without a due proportion of rest; neither can it convert into good chyle or

wholesome nourishment, a load of food
 unproportioned to its strength. There-
 fore to prevent this fundamental evil,
 every one ought now and then to fast a
 whole day, and at other times to eat
 with temperance, always making it a
 rule to rise from the table with an appe-
 tite; for I believe we receive more hurt
 from the quantity than from the quality
 of our food. And if we happen at any
 time to transgress this rule, which should
 seldom be the case, we ought then to
 fast till we find that the stomach has re-
 covered its due tone, and then to indulge
 it a day or two with only water gruel
 or chicken broth. In the choice of our
 food, experience is the best judge; we
 should never suffer our appetite to tempt
 us to eat what we find to disagree with us,
 or prove too much for the stomach to di-
 gest. To preserve the harmony of the body,
 it is necessary to regulate all our appetites,
 and they, that will not do it, must submit
 to the bargain they make, and take dis-
 eases in exchange for health; and one time

or

or other they will repent of their choice. At and after meals one may drink a moderate glass ; but as the wine, in general, is so adulterated and poisoned with heterogeneous matter, pure spirits, well diluted with water and plenty of lemon, is the wholesomest drink. To drink to a degree of intoxication is certainly very injurious to health, and a habit of drinking will break down the strongest constitution. The stomach is the first thing that fails ; for frequent debauches relax and impair its tone, and intoxication proceeds more from an affection of the stomach, than any effect the liquor has upon the blood. By observing these directions one will be seldom ill.

WHEN these rules have been transgressed, and the person finds himself ill, our first care ought to be directed to the primæ viæ, and if the body is costive, a gentle opening medicine should be taken or a clyster injected ; if the body is open and no sickness at the stomach, the patient should

should look up for assistance to the best
 physician in the world, I mean, kind
 Nature, who is always working for our
 relief, and would often work the cure,
 if not prevented by the injudicious and
 untimous aid of physic. When the per-
 son is ill, he should fast a day or two,
 and then live for a week or more upon
 a little water gruel, and after the first
 or second day he may take two or three
 tea-spoons full of rum in a large basin
 of tea, two or three hours before the
 times he uses to get up, for then the skin
 is softest and most relaxed: it promotes
 perspiration, which ought to be encouraged
 by lying in bed, and repeating the
 draught; if it fails the first day, perhaps
 it will succeed the second, and when it
 does, the patient will soon get well:
 but if these methods fail, a gentle eme-
 tic and cathartic would be administered;
 if the complaint still continues stubborn
 and will not yield, the person ought to
 repair to some medicinal water, or to the
 sea (and medicine should be the last
 thing

thing he applies to) and try what they can do, for nature compounds medicines better than the most skilful physician or apothecary; if he finds no benefit from nature's shop, then the complaint is bad indeed, and some stubborn obstructions are formed.

I MEAN only to apply these directions in slight cases, and where the person was in health immediately before the attack; where the disease is of some standing, and confirmed upon the constitution, these easy methods will not do, some artificial means must be made use of to open the obstructions, which, as I have proved, are the cause of all diseases, and expel the morbid matter by perspiration.

THE most powerful deobstruent, which, I believe, nature ever produced, is the powder which I have so often mentioned, and wish to recommend. It has wrought such wonderful cures, and brings about such a surprising change in the
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the body, that I am certain, when it comes to be known, it will recommend itself, and be greedily sought after; for wherever people, that are ill, see by experience that they can have relief, thither, no doubt, they will apply. So intimately are the component parts of this medicine mixed together, that a man is constantly at work upon them from morning till night, for pretty near two months before it is prepared, and then it is, perhaps, the most penetrating, and searching thing in nature.

If I might be allowed to suppose, from its virtues, its manner of operation, I would give the following account of it. I may very probably err in accounting for the manner in which it operates, but the facts I am sure of, and that is enough for me, and will, I suppose, give the suffering patient all he wishes. It is capable of pervading the minutest ducts, and smallest vessels, and of attacking the stagnant juices in the inmost recesses

cesses of their lurking holes, and yet at the same time it is so mild and of so benign a nature as to be divested of all pungent acrimony. It's parts, though of all other medicines the most active, are sheathed and enveloped by a soft innocent covering, which it never loses, as I suppose, till in the course of circulation, it introduces itself into the obstructed parts, the seat of action, where it is to exert its powers, which are excited to action from the resistance the viscid humour or obstructed matter gives to its passage; then it begins to break through the offending matter, which it opens, attenuates, and divides and fits it to flow, and then it hurries along the impacted humour, and scours the glands and secretory ducts from all filth and dregs, by attenuating the matter which caused the disorder; it breaks the edges of the salts and acrimony, and by absorbing and inclosing them, renders them unable to tear and destroy the fine and delicate fibres; it thins and assimilates the juices
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even in the minutest and most remote vessels, promotes excretion through all the emunctories, and I may venture to say, will remove, as far as is in the power of matter to effect, the most inveterate and chronic disease, arising from thickness or sluggishness of the humours, and from obstinate obstructions of the excretory ducts; it absorbs all acrimony. In short, it relieves, cleanses and unloads the whole animal system, by carrying off the morbid matter by whatever outlet nature seems to direct. In two patients in the gout where it was given, the water, after taking it, was a turbid mass, and so thick that you might have cut it with a knife; in one or two others, it operated by perspiration. Though it is not a bracer, yet, by the judicious use of it, the tone of the parts is restored, and the whole animal frame receives strength and vigour. It is of wonderful service in all scrophulous and cutaneous diseases; dissolves cold tumours, by opening the pores and expelling the obstructed

fructed matter by transpiration; it heals up ulcers both external and internal, and is a certain cure in asthmas, consumptions, king's evil, palsy, and fevers, even of the worst kind. I have never discovered any hurtful effects from it, but have, upon every occasion, experienced its excellent virtues, performed so wonderfully and so safely, that in the hands of a skillful physician, I may say, with much truth, that it will regulate and keep in order the whole animal oeconomy.

PERHAPS the reader may think I have given a long catalogue of diseases that are to be cured by the same medicine; which indeed is true, if he only regards the names, but if he considers the causes of diseases, he will find I have not mentioned too many, and time will convince him of the truth of it. And whoever attends to what I have said concerning the virtues of this medicine, and makes trial of it, will never have occasion to repent; but if any person should think

think all I have said to be of no consequence or ill grounded, he is welcome, and I shall not endeavour to persuade him to the contrary. I know the foundation upon which, all I have said, is built, and am certain it is a sure one; therefore I am not solicitous what some people perhaps, for a time, may say of it; I know that splendid names may, for a while, support mistaken theory and practice, and may give a check at first to the progress of things of the greatest consequence, but error cannot long stand, it must at last come to the ground, and truth will at length break through the opposing shades, and shine with greater lustre. The experience of some years has convinced me of the truth of this theory, and I am also as certain of the great efficacy of the medicine proposed. Its surprizing effects are known to several, some of whom are so well satisfied of the truth of it, that they have spoke of it with the highest raptures at a foreign court, in consequence of which,
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application was made from the same court, for the secret, and a very considerable reward offered, but I have not as yet consented; and if I do, it will be with several conditions.

I AM so certain of its virtues and of the safety of its operation, that I desire nothing where it fails, and am willing to give proof of its effects to any two or three whom the college of physicians or the royal society shall appoint. I wish it to be no more regarded than it deserves, yet I should be sorry to have it cried down or spoke against before it has been proved, but that is a piece of injustice I have no reason to expect from so generous a people as the English are; and I also know, that people that are ill wish to be well, and will apply to whatever means they know will procure it, when it is once made known unto them.

It is the common fate of all new medicines to be often injudiciously applied;

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and their operation, from the ignorance of the giver, not being understood, the medicine is blamed and rejected as useless and of no merit, and incapable of doing what is said of it, and what is really in its power to perform. Under these circumstances, what credit can a medicine receive, or rather what disgrace is it not like to meet with? therefore I have determined to give it with my own hand till such time as its powers and virtues are fully proved to every person's satisfaction; and if the public will suspend their judgments of it for a little time, they will see that it is no quack medicine of little or no virtue, which is attempted to be palmed upon the credulous. When its merit is fully established, I shall then willingly dispose of it in any way that appears likely to conduce most to the public good.



F I N I S

